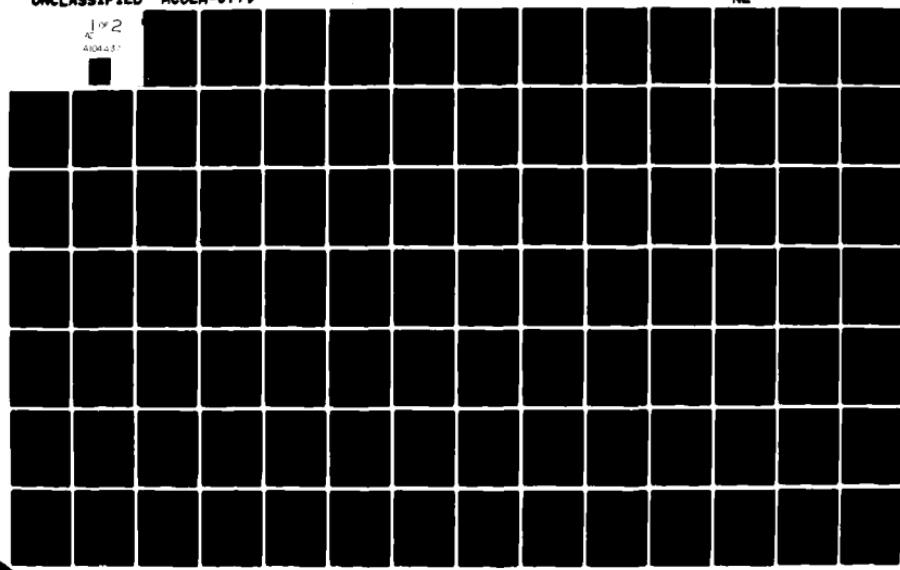


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HAZARDOUS MATERIALS MANAGEMENT SYSTEM

A GUIDE FOR LOCAL EMERGENCY MANAGERS

By
Myra T. Lee
Penelope G. Roe

for

Federal Emergency Management Agency
Washington, D.C. 20472

Contract No. DCPA01-79-C-0323 Work Unit 4521E
James W. Kerr, COTR

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Multnomah County Office of Emergency Management
12240 N.E. Glisan, Portland, Oregon 97230

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MCOEM 0779
July, 1981
Final Report

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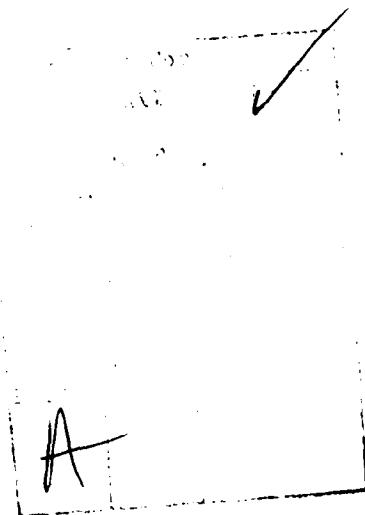
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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

141M30EM-6700

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DCPA01-79-C-0323 Work Unit 4521E	2. GOVT ACCESSION NO. AD-A104 437	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) HAZARDOUS MATERIALS MANAGEMENT SYSTEM. A GUIDE FOR LOCAL EMERGENCY MANAGERS.	5. TYPE OF REPORT & PERIOD COVERED 9 FINAL rept.	
6. AUTHOR(s) MYRA J. LEE / PENELope G. ROE	7. CONTRACT OR GRANT NUMBER(s) DCPA01-79-C-0323	
8. PERFORMING ORGANIZATION NAME AND ADDRESS MULTNOMAH COUNTY OFFICE OF EMERGENCY MANAGEMENT 12240 NE GLISAN PORTLAND, OREGON 97230	9. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Work Unit 4521E	
10. CONTROLLING OFFICE NAME AND ADDRESS MULTNOMAH COUNTY OFFICE OF EMERGENCY MANAGEMENT 12240 NE GLISAN PORTLAND, OREGON 97230	11. REPORT DATE JULY 1981	12. NUMBER OF PAGES 120
13. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) 12 JUL 1981	14. SECURITY CLASS. (of this report) UNCLASSIFIED	
15. DECLASSIFICATION/DOWNGRADING SCHEDULE		
16. DISTRIBUTION STATEMENT (of this Report)		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) HAZARDOUS MATERIALS SYSTEM "HOW TO" MANUAL		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) An increase in the manufacture, storage, and transportation of hazardous materials is occurring across the nation. Local jurisdictions have realized that they have the responsibility to assure a reasonable level of safety to their community members and visitors alike. Such a responsibility can be met by developing methods of preventing hazardous materials incidents; enforcing laws related to transporting and storing hazardous materials; the initiating of an appropriate first response, and activating available resources of government agencies and commercial organizations that deal with containment		

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and clean up. This manual has been written to help in the development of a total Hazardous Materials Management System. The manual describes one approach but allows for variations as may be appropriate for the specific jurisdiction.

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DETACHABLE SUMMARY

This project is the result of a proposal submitted by Multnomah County, Oregon, Division of Public Safety, Office of Emergency Management, for the development of a Hazardous Materials Management System. The overall goals of the project were to reduce the number of hazardous materials incidents that occur in Multnomah County, mitigate the effects of those that do occur, and improve the effectiveness, efficiency, and safety of the county efforts to deal with these incidents. In accordance with these general goals, the specific objectives were established for the project as follows:

Task: Conduct a risk analysis to measure the magnitude and nature of the county's exposure to hazardous materials incidents and to identify those hazardous materials most likely to be encountered in the area.

Methodology: It was felt that there was limited expertise within the agencies involved to adequately address the problem. Therefore, a decision was made to sub-contract with an organization having demonstrated experience in such activities. The result provided the basis for data collection and analysis and has been incorporated as a maintenance element within the system.

Task: Conduct a resource inventory to identify and organize the resources available to the county, for both internal and external sources, for dealing with hazardous materials incidents.

Methodology: Materials were gathered from various sources identifying organizations, equipment, supplies, and manpower necessary or mandated to respond to hazardous materials incidents. This information was categorized and cross referenced then added to the resource inventory system.

Task: Develop a hazardous materials technical information system, having three major components:

- (a) A comprehensive library of pertinent reference books, reports, manuals, and other documents.
- (b) A manual system of forms and procedures for recording, storing, and analyzing information about actual hazardous materials incidents in the county.
- (c) A simple computerized information retrieval system, capable of accessing remote data bases of general hazardous materials reference information, and a local data base of information specific and unique to Multnomah County.

Methodology: The components of the technical information system were individually addressed:

- (a) A search was conducted to identify sources of information. Starting with those that are well known, the network of information sources rapidly expanded as each source was able to provide additional avenues to search. A comprehensive list was then organized which continues to be added to.

- (b) During the project development, forms were gathered that had been utilized by other responding agencies. These were tested on actual alerts and incidents and later analyzed in relation to the adequacy and usefulness of the information being requested. From that analysis draft forms were prepared and tested with the final resulting system expected to provide valid data for continued planning activities.
- (c) This portion of the information system was sub-contracted to technical experts for the development of both the hardware and software design. Although it is recognized that additional refinement will occur as the "state of the art" progresses, the system appears to satisfactorily meet the current needs for product and response information.

Task: Establish a hazardous materials incident prevention program, with legal enforcement, industrial relations, and public relation components similar to those of fire prevention programs.

Methodology: Contacts were made with agencies that have a response or investigative responsibility and with the businesses and industries that handle hazardous materials. Emphasis was placed on the need for adequate and appropriate handling of hazardous materials as well as response plans and coordination of activities. Requests for training have been met by providing workshops, and basic and intermediate training courses.

Task: Establish equipped initial response units as a joint venture of Multnomah County Fire District #10, Multnomah County Office of Emergency Management and the Division of Public Safety.

Methodology: The few existing response units on which information was available were reviewed and their capabilities compared with the needs and objectives as identified for this geographic area. Based on this information, a determination was made regarding the type of vehicle; type and quantity of equipment and supplies; essential manpower; and communication requirements. Since this was a multi-agency project the final product reflects the requirements of all responding parties and represents a comprehensive approach to the technical operations.

Task: Establish a hazardous materials training program, based primarily on the coordination of the existing training courses.

Methodology: It became clearly evident even before the project began that training programs were being developed all across the nation. It was difficult to know exactly what the training needs were, therefore, two of the more prominent programs were attended. An experimental DOT course was presented in Multnomah County on a pilot basis and an instructor from Tennessee was contracted to present two weeks of instruction to first responders from both Oregon and Washington. The course has been further refined and

will be an annual event open to personnel from both government and industry. There are plans to conduct additional courses on specialized subject matter that is relevant to the local program. All the above activities have been covered in a "Hazardous Materials Management System Guide" which is intended to provide a structured plan of action. It must be adapted to the needs within a specific, defined geographic area and based on the degree of hazard and the available resources.

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ACKNOWLEDGEMENTS

As in every work of this kind, there are numerous people who contribute to the final product. No one person can generate a valid document that fulfills the needs of the various disciplines. This guide is certainly no exception. It was conceived and nurtured by a variety of dedicated persons, all of which cannot be adequately thanked or acknowledged here. However, the following people were exceptional in their unwavering support and good nature in the face of numerous frustrations and setbacks, and were tenacious in seeing the project through to completion.

I would like to thank Clifford McLain and Helain (Lanny) Elderkin for providing the opportunity to realize a dream; to Fred Pearce for allowing the freedom to "do it my way" and to make my own mistakes; to Penny Roe, Len Malmquist and Brian Reynolds for their combined knowledge, expertise, and attention to detail; and last but not least to the Division of Public Safety Word Processing Unit that put up with the numerous proofings, changes, and requirements for perfection. Without these people I would not have been able to present to you what I believe will enhance the ability of an Emergency Manager to provide an integral element of a comprehensive Emergency Management system.

MYRA LEE, Manager

Office of Emergency Management

July, 1981

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PREFACE

PREFACE

This guide is one of the products that resulted from a proposal that was initially funded by the Defense Civil Preparedness Agency (which was later incorporated into the Federal Emergency Management Agency). The Multnomah County Office of Emergency Management was fortunate enough to be the recipient of funds that came at a time when local resources were severely limited and problems relating to the handling of hazardous materials incidents were beginning to surface in ever increasing numbers all across the nation.

One of the objectives for the project was to optimize the available funds for the good of the community as a whole. In order to realize this objective it has been essential to generate coordination and cooperation as a multi-disciplinary and multi-jurisdictional effort. While many problems surfaced, the project has ultimately been a satisfying and productive process that has proved beneficial to all agencies directly involved as well as others that participated peripherally by attending training sessions, evaluating response activities, offering advice and assistance, or donating equipment and supplies.

It is recognized that by the time the concept of a systems approach for hazardous materials management sweeps the country in the near future the system which was implemented under this project contract will probably be relatively obsolete. The system will continue to be effective but better more efficient methods and technology will be developed as business, industry, and government personnel become more aware of their individual roles and responsibility for mitigation, response, and recovery.

INTRODUCTION

INTRODUCTION

Purpose

The purpose for the development of this handbook is to provide a tangible guide to the local emergency manager for the development and implementation of a comprehensive system approach for dealing with hazardous materials incidents within a specific geographic area. It was written from the perspective that such a system is multi-disciplinary in nature and therefore it is essential that those involved identify, understand, and accept their individual roles within the concept of a team effort. The role of the local emergency manager is that of directing and coordinating developmental activities, monitoring the implementation of the system, and subsequently, to test and evaluate its progress. The roles of initial response, clean up, investigation, and regulatory enforcement are most appropriately handled by the public and private agencies with the technical expertise and mandated authority to do so.

Process

The planning process may be the most beneficial phase of system development in terms of a positive learning experience. It is during this period of time that enthusiasm is high, support is forthcoming from local officials, and the basis for continuing cooperation can be established.

Usually when a project such as this, relating to a specific contingency or function, elicits the involvement of a number of agencies, there is a question as to which one will act as the lead agency. The parochialism inherent in such an effort can be overcome if all participants take a critical and objective look at what their agency role really is and how it functions as an integral element of the "system".

There are arguments for and against various personnel and positions which could adequately and efficiently handle this function. However, that point is not argued here. The rationale for writing this guide for the local emergency manager is that a specific responsibility of emergency managers is to help other agencies and divisions of local government do their job better. This can be accomplished through inter-agency coordination which is a primary and essential activity of every emergency management program on all government levels throughout the nation. The emergency manager must clearly identify the major tasks that need to be organized in accordance with personnel, time, and funding, monitor the progress of the project and minimize, to the extent possible, delays, problems, and barriers which may be encountered.

Limitations

While the term "hazardous materials" as used here has a broad connotation it refers primarily to commodities rather than hazardous wastes. Much of the equipment and many of the safety measures for responding to a hazardous material incident could also be used for hazardous waste incidents. However, there are some unique characteristics related to the handling of hazardous waste and the authority to enforce regulatory statutes that are not dealt with in this guide.

DISCUSSION OF THE PROBLEM

An increase in the manufacture, storage, and transportation of hazardous materials is occurring across the nation. Local jurisdictions have realized that they have the responsibility to assure a reasonable level of safety to their community members and visitors alike. Such a responsibility can be met by developing methods of preventing hazardous materials incidents; enforcing laws related to transporting and storing hazardous materials; the initiating of an appropriate first response, and activating available resources of government agencies and commercial organizations that deal with containment and clean up.

In most instances there are a number of factors that may hamper local government efforts to meet these responsibilities. The following are primary problem areas that are addressed in this handbook:

Lack of Information About the Hazard

There are few communities that have any organized source of information about the identity and location of the major hazardous materials manufacturing, storage, transfer, and distribution facilities or the quantities, types, schedules, and routes of shipment of these materials into, out of, through, and within a geographic area. Any jurisdiction wishing to specifically identify the extent of their problem should conduct a hazard analysis that provides this information.

DISCUSSION OF THE PROBLEM

Lack of Information About Resources

Another of the weak links in emergency management programs of local government seems to be the lack of information related to identification, location, availability, and access to resources that can be used for mitigation, response, and recovery from an emergency situation. Dealing with hazardous materials incidents is no exception. Although resources for such activities are available through local, state, federal, and private agencies, there is generally no central source of information which identifies all of the resources, describes their capabilities, or provides for their coordinated use. All of this information is essential in a comprehensive emergency management system and can be obtained by conducting a survey of business, industry, labor, and government agencies.

Lack of Tactical Information

There is a need for access to accurate and comprehensive information about the characteristics and effects of specific hazardous materials (of which there are thousands). Procedures for dealing with them are limited due to the fact that local government has had relatively little experience with or exposure to such incidents. There is no central source of detailed historical

information about hazardous materials incidents that have occurred in the past and few if any systems have been developed for capturing such information in the future. The development of an information retrieval system which is directly related to the identified risk in a specific geographic area is imperative in order to optimize the ability of the responders to protect their own lives as well as those of persons near the hazard. Additionally, it should provide enough information to the response personnel to make knowledgeable decisions related to containment, control, and cleanup, particularly if there is no commercial organization readily available to handle it.

Lack of Response Capability

Local government has law enforcement and fire service agencies which are generally well prepared and equipped for dealing with most ordinary and many extraordinary types of incidents. However, there remains a requirement for local government to be specifically prepared for initial response, assessment, and control of hazardous materials incidents that would affect the jurisdiction, in order to carry out their legal mandate to protect lives and property, and to stay alive in the process. In order to do so they need to have appropriate information, equipment, and supplies readily available for this purpose.

Lack of Training

Hazardous materials training courses are available to local response personnel in many forms and from many sources . However, they are seldom organized into a coordinated overall program which clearly defines goals and objectives designed to meet local needs. Local government often lacks the ability and the funds to conduct in-house training programs of this type. Since hazardous materials incidents are a universal and costly problem it behooves both the public and private organizations to pool their training resources and to conduct training programs that are regional in scope and specifically related to the types of materials that constitute the greatest risk to a specific area.

Lack of Prevention Capability

There is a need for review and possible strengthening of a local government's hazardous materials law enforcement efforts and for clarification of the legal environment in which an enforcement program operates. This is an element that becomes even more essential as new laws are enacted by local, state, and federal agencies, some of which have resulted in conflicts between different levels of government and the public and private sector. The

problem proliferates in direct proportion to the increase in agencies designated or claiming a primary responsibility for control of hazardous materials and waste substances. Additional regulations and requirements placed on business and industry seem also to have resulted, in some areas, in a decrease in cooperation between public and private organizations. This emphasizes the need for a well organized industrial and public relations effort aimed at information exchange and incident prevention measures.

ORGANIZATION OF TASKS

ORGANIZATION OF TASKS

The multi-disciplinary nature of hazardous materials response dictates the active involvement of those with specific technical expertise throughout the entire planning, development, and implementation of a hazardous materials management system. There are many ways to effect such involvement however, the one proffered by this guide is the establishment of a small Technical Advisory Committee (TAC) consisting of representatives from police, fire, and emergency management. This group can serve both in an advisory capacity to the emergency manager and as an operational group to carry out the activities identified in the following task descriptions.

TASK ONE
HAZARD ANALYSIS

TASK #1: HAZARD ANALYSIS

OBJECTIVES

A hazard analysis can be accomplished either by obtaining qualified assistance from any appropriate unit of government, such as the fire department, or by contracting with a consultant. The task will require the identification of all fixed facilities where hazardous substances are manufactured, stored, distributed, transferred, or sold within a defined area. In each case the types and quantities of material involved should be determined. These factors may vary due to seasonal considerations, i.e. agricultural use of pesticides and fertilizers.

It is also necessary to examine the transportation of hazardous materials and the routes used in and through the area. The end product should be a collection of information identifying:

- Major high risk fixed facilities
- Major carriers of hazardous materials
- Main transportation routes
- Types and quantities of materials

It is essential to designate specific "key hazards" such as major manufacturing plants or particularly dangerous transportation routes. A map or set of maps may be beneficial in illustrating the specific "key hazards" for a visual interpretation of the risks involved in the area.

ACTIVITIES

1. Identify the specific work activities to be carried out and deliverable products to be produced. (Deliverable product means any document or illustration that will result from a particular task.)
2. Compile this information into a formal request for a proposal (RFP) if the activities are to be contracted out, or into a work plan if it is to be accomplished with existing agency assistance.

Steps involved in negotiating a contract with a consultant.

- Write a formal request for a proposal (RFP).
- Issue requests for proposal to various consultants.
- Confer with consultants as necessary to explain activities and results expected from the contractor.
- Review responding proposals.
- Interview leading candidates.
- Select consultant.
- Negotiate a finalized work plan.
- Award contract.

3. Survey and identify all of the fixed facilities where quantities of hazardous materials are found. Categorize each facility according to whether hazardous materials are manufactured, used, stored, sold, distributed, or transferred. Then characterize each facility by using the Uniform Building Code to see if the building, configuration or structure poses a threat because of the hazardous materials being used in the operation of this facility.

(NOTE: The Uniform Building Code will aid in the identification of those facilities which have safety features incorporated into the building design. These design features provide for the separation of hazardous processes, the safe removal of flammable or explosive vapor, and the containment of and diking of corrosive or toxic products. These design features will aide a responding agency in case of an incident.)

4. Identify the major modes of transportation and their routes by which hazardous materials are transported into, out of, through, and within the area. Estimate the frequencies of shipments and the types and quantities of materials involved.

(NOTE: Records of the State Public Utilities Commission, port offices, railroads, highway commissions, various fire service organizations, and other sources may need to be reviewed to obtain this information.)

5. Identify specific locations and/or routes which are "key hazards" by virtue of the type and/or quantity of material or materials; exposure to population centers or the environment; barriers to access by response agencies; danger to response personnel; and response capability of the jurisdiction.
6. Prepare a report of the findings of the hazard analysis. Include in the report a plan for periodic updating of the analysis.
7. Prepare a map or set of maps in a convenient format for visual interpretation of the report.

DELIVERABLES

- Report of hazard analysis findings.
- Map or maps of hazardous materials routes and locations.

CONSIDERATIONS OF EXAMPLES

It is important to remember that you will be dealing with private businesses and organizations and this information may be proprietary in nature. You may need to assure a business or organization that any information received will be kept confidential.

TASK TWO
RESOURCE INVENTORY

TASK #2: RESOURCE INVENTORY

OBJECTIVES

A resource inventory should identify the available resources needed in dealing with a hazardous materials incident. A method of accomplishing this task is by using the Technical Advisory Committee (TAC). Types of resources to be taken into consideration are:

- Technical Assistance - Chemists, toxicologists, industrial response teams, government agencies, public or private agencies, clean up organizations, etc.
- Equipment - Self contained breathing apparatus, pumps, generators, heavy equipment, special suits, special meter equipment, etc.
- Supplies - Lime, dirt, soda ash, plugging materials, patching materials, extinguishing agents, etc.

Finally, the TAC should establish procedures for utilizing these resources.

ACTIVITIES

1. Identify the specific work activities to be carried out, the results expected, and the deliverable products to be produced. Compile this information into a formal inter-agency memorandum.
2. Identify the local, state, and federal agencies and private companies which can respond or provide assistance to a hazardous materials incident. For each such organization:
 - A. Define the types of incidents to which the organization can respond.
 - B. Classify the organization as initial responder, advisor, clean up operation, etc.
 - C. Identify the specific information such as names, telephone numbers, etc., to be notified to elicit a response from the organization 24 hours a day.
 - D. Determine the status of any agreements with the organization. When necessary and appropriate establish, renew, or strengthen any such agreements.

E. Assess the ability of the organization and local government to coordinate joint operations. For example, investigate such factors as commonality of radio frequencies, interchangability of equipment components and coordination of command and control. When necessary and appropriate, recommend changes and improvements.

3. Identify types of available equipment necessary for containment and control of an incident.

4. Identify types of available supplies necessary for containment and control of an incident.

5. Obtain the following information from each company or organization listed for each individual resource category.

- Name of Business or Agency
- Address
- Primary Contact Person
 - . Business Phone Number
 - . After Hours Phone Number
- Secondary Contact Person
 - . Business Phone Number
 - . After Hours Phone Number
- Resource Category (Vehicles)
- Characteristics of resource, i.e.
 - . Size
 - . Different Types (Chemical Truck, etc.)
 - . Power Capacity

Establish, renew, or revise any mutual aide or response agreements from commercial companies or public agencies as necessary.

CONSIDERATIONS AND EXAMPLES

The activities listed will help in developing an effective manual system for maintaining a resource inventory. This same information can be used when developing a computerized system. Suggestions for utilization of information in a computerized system are:

- Categorize resource by its utilization relative to a specific hazard classification.
- To prevent constant updating of information, list only the types of equipment available, not quantities.

Attached is a sample list of resources used by first responders for management of hazardous materials incidents.

Remember, even though a company may be listed as a resource their equipment may be out of service or unavailable so be sure to list as many sources as possible for each item.

SAMPLE RESOURCE CATEGORY LIST

TECHNICAL ASSISTANCE:

Amy Ordinance Unit
Bomb Handlers
Bureau of Explosives
Chem-TREC
Chemical Information
Chemical Response Information
Chemists
Clean-up Companies
Department of Environmental Quality
Department of Transportation
Environmental Protection Agency
Fire Departments
Gas Companies
Hazardous Material Experts
Hazardous Material Teams
Highway Department
Law Enforcement Agencies
Motor Carrier Safety
National Response Center (NRC)
National Transportation Safety Board
Port Authorities
Public Information Media
Public Works
Radio Stations
Radioactive Material Handlers
Railroad Dispatchers
Railroad Division Superintendent
Railroads
Regional Response Teams
Sanitation Agencies
Sheriff's Office
State Fire Marshal
State Police
Stevedoring Companies
Street Department

Structural Engineers
Television Stations
Toxicologists
US Coast Guard
US Department of Agriculture
US Department of Transportation
US Nuclear Regulatory Commission
Waste Disposal Companies
Wrecking Companies

EQUIPMENT:

A, B, and C Chlorine Kits
Boom Floats (oil spills)
Breathing Air (self contained breathing apparatus - positive pressure)
Bulldozers
Cement Mixers
Centrifugal Pumps
Chain Saws
Chemical Suits
Chlorine Patch Kits
Circular Saws
Construction Equipment
Cranes
Cutting Torches
Draeger Kit
Dump Trucks
Explosion Meters
Explosion Proof Lights
Fire Department Equipment
Flood Lights
Fuel Suppliers
Gasoline Delivery Trucks
Generators
Heavy Equipment
Hurst Tools
Infrared Probeye
Lighting Units (portable)
Marine Tug (with fire pump)

Negative Pressure Pumps
Oxygen Meters
Positive Pressure Pumps
PH Meters
Radio Communication Center (mobile)
Railroad Cranes
Saws (chain, circular, gas, electric)
Submersible Pumps
Suction Pump Truck
Sump Trucks
Tow Trucks
Tractor/Trailers
Vacuum Tanks
Welding Equipment

SUPPLIES:

Absorbents, Chemicals
Barricades
Barrels
Cement
Compressed Air
Diking Material
Dirt
Drums
Fire Department Supplies
Foam, AFF
Foam, Alcohol
Foam, High Expansion
Foam, Protein
Gravel
Lime
PVC Pipes - steel, concrete, plastic, cast iron
Plug - in - Dike
Portable Water
Quarries
Rope
Sand
Sawdust
Soda Ash

TASK THREE
TACTICAL INFORMATION SYSTEM

TASK #3: TACTICAL INFORMATION SYSTEM

For the purposes of this guide a tactical information system consists of information concerning the properties and effects of hazardous materials; procedures for dealing with hazardous materials incidents; and a method of obtaining and maintaining incident information.

A practical system will include the following:

- An incident reporting system
- A reference library
- An information retrieval system

INCIDENT REPORTING SYSTEM

OBJECTIVES

The incident reporting system will be a simple manual system. The system will consist of standard forms and procedural check lists for a complete, accurate, and consistent recording and reporting of hazardous materials incidents.

The Technical Advisory Committee (TAC) should interview potential providers and users of hazardous materials incident reports to determine what information is really needed and how it would be used. Next, they should design a set of data collection forms. Finally, TAC should prepare a users procedure describing how to fill out the incident report form, how to summarize statistics, and how to make practical use of the data.

ACTIVITIES

1. Plan the work to be done in the development of a hazardous materials reporting system. Identify the specific activities to be carried out, the results expected, and the deliverable products.
2. Conduct a requirements analysis:
 - A. Identify those persons who have a need for reports, statistics, and other information concerning hazardous materials incidents.
 - B. Identify any potential external users who may require specific information, such as state or federal agencies.
 - C. Identify any external systems with which the reporting system should be compatible, such as Department of Transportation, National Fire Protection Association, Uniform Fire Incident Reporting System, or the reporting systems of the National Fire Prevention and Control Administration.
 - D. Determine the specific items of data needed to support the information needs of the person and agencies identified in "A" and "B" above.
 - E. Determine the best sources of information for each of these items.
 - dispatch records
 - police reports

- fire reports
- initial responders
- secondary responders (e.g., federal agency or clean up agency)

F. Identify agencies which require reports within a specific period of time.

G. Review any forms, reports, or procedures currently being used by public safety agencies to record and report hazardous materials incidents. Determine the degree (if any) to which they meet the requirement defined in "A" through "E" above, and outline any necessary changes.

3. Develop a set of collections forms from information gathered in the requirements analysis.
4. Prepare a procedure giving detailed instructions for gathering data, filling out the data collection forms, preparing statistics, distributing reports to the users, and maintaining reference files of completed forms and reports for further planning activities.

DELIVERABLES

- Data collection forms
- Utilization procedure

CONSIDERATIONS AND EXAMPLES

Several different types of data collection forms have been developed by other hazardous material projects. A source for obtaining copies of these forms are through fire and police trade magazines and different hazardous materials newsletters and bulletins.

The information gathered for the data collection form can be used in several different manners. The obvious one is for legal documentation of the incident. Accurately document as much information as possible about an incident. This information is important because it will help establish liability, provide public information and as reference for similar incidents. When a similar incident has occurred review all past data forms. This may help in obtaining technical assistance or resources that have been used in the past. It may also help in preventing mistakes which happened in previous incidents.

Following is a sample data collection form.

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HAZARDOUS MATERIALS
INCIDENT REPORTING FORM

REPORTING

Date: _____
Time: _____

Agency Calling: _____

Person Calling: _____

Telephone Number: _____

Report Numbers: Police _____ Sheriff _____ Fire _____

PROBLEM

Address: _____

County: _____

Location Description: (Rural, Residential, etc.) _____

Date of Incident: _____ Time of Incident: _____

Name of Product: _____

EPA Number: _____

DOT Classification of Product: _____

Type of Transportation: _____

Identification Number: _____

Shipper, Owner, or Producer of Product: _____

Name of Carrier: (If Transportation Accident) _____

Color and Number of any Labels on the Carrier or Cargo: _____

Quantity of Product: _____

Type of Incident: Pick-up _____ Spill _____ Accident _____

Leakage _____ Purposeful Drainage _____ Fire _____

Other _____

Environmental Threats: Water _____ Ground _____

Air Problem _____ Other _____

HAZARDOUS MATERIALS
INCIDENT REPORTING FORM
PAGE 2

Reason for Cause of the Incident: _____

ACTION

Environmental Factors:

Weather Conditions: _____

Wind Direction: _____

Wind Velocity: _____

Product Factors:

Flammability: _____

Vapor Density: _____ Specific Gravity: _____

Toxicity: _____

Active Ingredient: _____

Responders:

Fire: County _____ City _____

Police (on scene control): State _____ County _____ City _____

State Agencies: DEQ/DOE _____ Agric. _____ Health Div. _____

Hwy Div. _____ Fish & Game Comm. _____ PUC _____ DOT _____

Other: EPA _____ FAA _____ NTSB _____ Forest Serv. _____

USCG _____ Other _____

Notified:

Emergency Management: State _____ County _____ City _____

Health Dept.: State _____ County _____ City _____

Hospitals: (Name of hospital) _____

Hwy Dept.: State _____ Public Works: County _____ City _____

State Agencies: Accident Response System _____ DEQ/DOE _____

Other: CHEMTREC _____ NRC _____ DOT _____

Nuclear Reg. Comm. _____ Other _____

**HAZARDOUS MATERIALS
INCIDENT REPORTING FORM**

Action Taken: _____

(Use back of page, if necessary)

(Use back of page, if necessary)

Disposal: _____

**HAZARDOUS MATERIALS
INCIDENT REPORTING FORMS
PAGE 4**

Injuries: (Name and Address per Victim)

(1) _____ (2) _____

(3) _____ (4) _____

Ambulance Transporting Victims:

⁽¹⁾ See also the discussion of the relationship between the two concepts in the section on "The Concept of Social Capital".

(3) _____ (4) _____

Remarks:

Digitized by srujanika@gmail.com

Digitized by srujanika@gmail.com

Digitized by srujanika@gmail.com

Report by: _____ **Date:** _____

REFERENCE LIBRARY

OBJECTIVES

A reference library should be established because it provides essential data and safety procedures and acts as a manual backup system.

The reference library should be simply a collection of reference books, text books, manuals, papers, reports, magazines, journals, and other documents and periodicals on the subject of hazardous materials. A plan for periodic review and updating should also be included as books are needed or become available.

ACTIVITIES

1. Conduct a literature search to develop a list of reference books, text books, manuals, papers, reports, magazines, journals, and other documents and periodicals dealing with hazardous materials. Determine the costs of each item, review the items for the selection of those which are most pertinent to the needs of the area.
2. Purchase selected documents, enter subscriptions for applicable magazines, and periodicals, and request "free" materials.
3. Plan for periodic review and updating of the reference library. For example, be placed on any mailing list for automatic modification of up-dates and revisions.

DELIVERABLES

- List of available reference materials including costs.
- Collection of selected reference materials.

CONSIDERATIONS AND EXAMPLES

A good source of available reference materials is through the fire and public safety trade magazines. Telephone calls to any of the hazardous materials training institutes may provide lists of good reference materials.

A list of reference materials have been included in this guide. See Appendix I.

INFORMATION RETRIEVAL SYSTEM

OBJECTIVES

The information retrieval system is a method for accessing information on specific hazardous materials and their locations within a specific area.

There are two different methods of presenting this information. It may be either a manual system or an electronic system. A manual system can be a set of forms cross referenced and organized into specific categories, i.e., product names, synonyms, United Nations number, and facility and kept in notebooks or card files. An electronic system can be either microfilm, microfish, or a computerized system and can also use the same information as designated above.

ACTIVITIES

1. Plan the work to be done in the development of an information retrieval system. Identify monetary constraints.
2. Identify the fixed facilities in which hazardous materials are manufactured, used, stored, sold, distributed, or transferred.
3. Identify all the hazardous materials found in each fixed facility.

4. Research each hazardous material. Document important characteristics and factors that need to be known if the hazardous material was to be involved in an incident, i.e.,
 - Flammability
 - Flashpoint
 - Vapor density
 - Specific gravity
 - Toxicity
 - Reactivity
 - Protective gear
 - First aid information
 - Extinguishing methods
 - Evacuation
 - Hazard class
 - Synonyms, etc.
5. Develop a form for documentation of all of the research information listed in Activity 4 including the facility locations of the hazardous materials.
6. Develop a form which will cross reference locations with the vital information related to hazardous materials located at that facility. This form should be geared more towards information about the facility itself, i.e.,
 - Emergency phone numbers
 - 704 building placard

- Other hazardous materials found in the building
- Protective gear
- Extinguishing methods
- Drainage
- Water supplies
- Product information experts
- Industrial response teams
- Facility on-site capability to handle the problem

7. If an electronic system is to be used, a review and comparison of different systems is imperative. Determine the type of system needed, cost of the system, and functional requirements for implementation.
8. Prepare a formal request for proposals. Include in the request a functional description of the desired operation of the system, a technical specification of the required hardware, a general description of the local data base contents and access requirements to remote data bases, if necessary.

NOTE: Follow same procedure as described in Task I - Hazard Analysis for awarding contracts.

9. Prepare an operational procedure for using the system. This should be done regardless of the type of system used.

DELIVERABLES

Data collection forms

System design

Operational Procedure

CONSIDERATIONS AND EXAMPLES

A model of a local computer data base accessing data by three different methods; common product name, synonym name, and location is shown on the following page. Each category is cross referenced to the assigned Department of Transportation number or Chemical Abstract Service (CAS) number.

Besides developing a local information retrieval system, other computerized systems are available. For example

A system called the Chemical Information System (CIS) has 13 data bases, one of which is called OHM-TADS (Oil and Hazardous Materials Technical Assistance Data System.) This data base has 1050 products and 126 items of information per product. Factors to be taken into consideration when researching remote data bases include subscription fees, cost of actual computer usage time, and compatibility with various computer systems.

If you are using a mobile radio telephone in conjunction with a field terminal to access a data system, be sure that the lines through the telephone system are compatible with the computer system.

The following is an example of a hazardous material computer print-out.

EXAMPLES OF HAZARDOUS MATERIALS COMPUTER PRINTOUT

HAZARDOUS MATERIALS: (Common Product Name)

Name: METHYL ETHYL KETONE

STCC: S1193

In Ohm-tads? (Y/N): Y

Document: 5, 7, 10

Pages: 234, 578, 952

Agency:

Comments: PLCD 1-3-0 COLORLESS LIQUID WITH ACETONE ODOR. FLAM: FLAMMABLE LIQUID. FLAMMABLE LIMITS 1.8-10.0% FP: 21 F VD: 2.4 SPGR: .806 REACT: REACTS VIOLENTLY WITH OXIDIZERS TOX: NARCOTIC BY INHALATION. TOLERANCE LEVEL 200 PPM IN AIR. AVOID IGNITION SOURCES STORE IN COOL, WELL VENTILATED AREA DANGEROUS FIRE RISK WEAR SCBA AND TURNOUTS WATER SOLUBLE SMALL FIRE-CO₂ OR DRY CHEMICAL. LARGE FIRE-STANDARD TACTICS. CONTAINERS MAY RUPTURE. EVACUATION 2000' ALL SIDES. SYN: BUTANONE, MEK, ETHYL METHYL KETONE.

SYNONYM:

Synonym Name: BUTANONE
STCC: S1193

Synonym Name: ETHYL METHYL KETONE
STCC: S1193

Synonym Name: MEK
STCC: S1193

HAZARDOUS LOCATIONS:

Street Number: 5920

Street Address: NE 87th

City: ENGINE 48

STCC: S1193

Phone 1: 252-3468

Phone 2:

UBC: H2

Census: 073.00

Comments: PLCD: 4-4-3-NW MANY EXTREMELY HAZARDOUS CHEMICALS LOCATED ON THESE PREMISES I.E., TRICHLOROETHYLENE, TRICHLOROETHANE, ISOPROPYL ALCOHOL, EPICHLOROHYDRIN, NITROMETHANE, AND PERCHLOROETHYLENE. SUSPECT CARCINOGENS ON THESE PREMISES. POSSIBLE RAILCAR OR TANKCAR ON THESE PREMISES. FULL TURNOUTS AND SCBA BE WORN AT ALL TIMES.

TASK FOUR
RESPONSE UNIT

TASK #4: RESPONSE UNIT

OBJECTIVES

Although there are different types of response units throughout the nation, for the purposes of this guide, a description of a converted "motor home" response van will be provided.

Hazardous materials incident first responder units should be established within the appropriate agency. The objective of these units is to provide fast initial response, identification of the material, assessment of the incident, and initial containment and control of the incident until a private company or government team arrives for containment and clean up of the incident. The response unit should also be able to handle the total management of small scale incidents, if necessary. The unit must be staffed with trained professionals available on call 24 hours every day. The unit should be fully loaded, equipped and self contained.

ACTIVITIES

1. Plan the work to be done in establishing a response unit.
2. Study the hazardous materials response units throughout the nation. Determine the type of unit needed and identify the type of equipment to purchase for the needs of the area.
3. Establish a response unit.
 - Prepare procurement specifications for the response unit and equipment.
 - Design the internal arrangement of the unit.
 - Order and procure the unit and equipment.
 - Construct the interior of the unit and install the equipment.
4. Set up the organizational personnel framework of the unit.
5. Establish written operating policies and procedures for activation and response.
6. Prepare written job descriptions for each member of the response team and assign roles.
7. Provide and prepare procedures for training of personnel and testing of equipment.

DELIVERABLES

- Response van and equipment.
- Operating policies and procedures for unit.
- Job descriptions for response team personnel.
- Procedures for testing equipment.
- Response Team training program and schedule.

CONSIDERATIONS AND EXAMPLES

When deciding what type of response unit is needed, keep in mind what other type of response equipment may need to accompany the hazardous materials response unit or if the unit will be used for primary response. Provide for optimal utilization of the unit by its dual-use as an on-site command post for other emergency situations.

Carefully study all brands of equipment. Don't let costs be the primary factor. Determine your choice by the safety protection factors the equipment may offer as related to the danger of the hazardous material products.

When writing the operational procedures for the response unit, be sure to research various response agencies and determine the functions which your agency will be responsible for. You may not want to duplicate operations, so be sure your guidelines are clear.

A model design of a "motor home" response unit is shown on the following page.

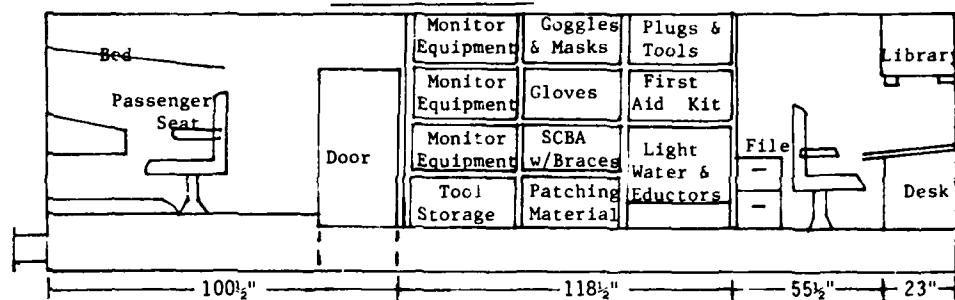
A sample inventory of the unit may be found in Appendix 2.

When selecting your response team, it is advisable to organize it based on a multi-disciplinary response. For example two firemen, one policeman, and one emergency management person. By having a multi-disciplinary response, the differentiation of roles between police, fire, and emergency management personnel will be maintained and communications will remain open because each team member can talk to their respective agency and keep them apprised of the situation. It is often very difficult for one agency to direct the actions of another agency and expect them to respond, even if it is in the best interest of safety. Although the problem will not be resolved, it should be alleviated.

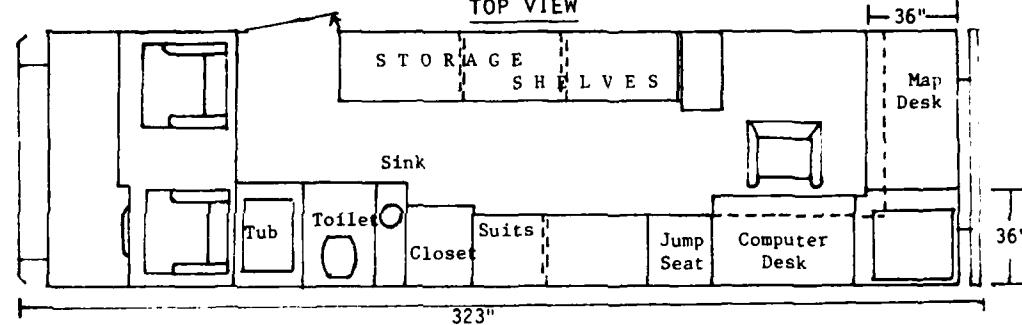
A response team for a unit as described in this guide should consist of at least three people. A minimum of four members is advised. This will provide for one 2-man team, a back-up/monitor for the team, and one communications/resource person.

HAZARDOUS MATERIALS RESPONSE UNIT

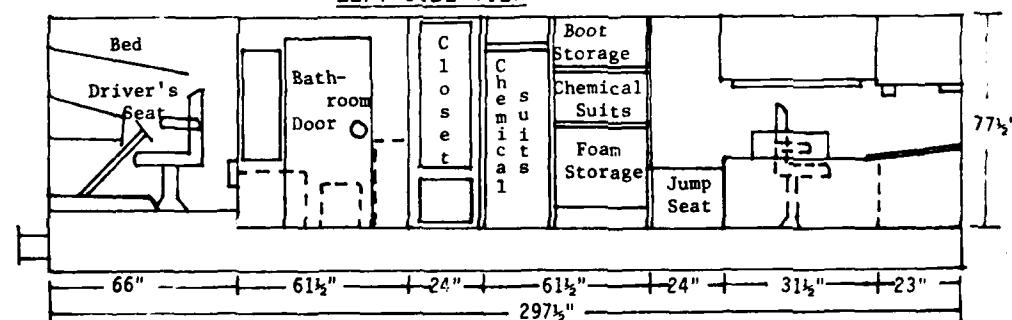
RIGHT SIDE VIEW



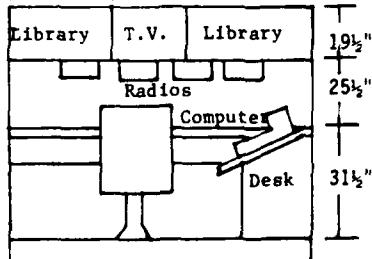
TOP VIEW



LEFT SIDE VIEW



END VIEW



TASK FIVE

TRAINING

TASK #5: TRAINING

OBJECTIVES

The hazardous materials training program should emphasize the identification and coordination of existing courses, rather than the creation of redundant new courses. A well coordinated training program may consist of courses supplied by government agencies as well as private or commercial organizations. These courses should be cataloged and arranged in logical sequence and functional groups that meet the needs of the locale in which they are to take place.

ACTIVITIES

1. Plan the work to be done for a coordination of training programs. Identify the specific activities to be carried out, the results expected, and the deliverable products to be produced.

2. Determine the training needs of the agencies with responsibilities related to hazardous materials. Specifically determine who must be trained, the subject areas that must be covered, and any costs and schedule considerations that will apply.

3. Identify any professional or educational organizations or agencies which provide official recognition and certification of hazardous materials training programs. Such organizations might include local colleges and universities, the State Board on Police Standards and Training, the National Fire Prevention and Control Administration, fire training and standards boards, etc. Identify the specific standards and requirements for such certification.
4. Identify the hazardous materials training programs available to local personnel. These would include in-service programs provided by local agencies of the various disciplines, as well as classes and programs offered by state and federal agencies, private companies, professional groups, and other organizations.
5. Collect and compile complete information on all of the courses in Activity 4. The information on each course should include:
 - Eligibility requirements
 - Course content
 - Duration
 - Travel information
 - Location
 - Fees
 - Materials and supplies

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6. Analyze information in Activity 5. Identify those courses which can best meet local objectives. Organize them into a curriculum in such a way that the content is not redundant, it follows a logical progression, and it builds upon each preceding section or class. In this way the prerequisites for each succeeding course are met by earlier courses. Identify those courses or sequences appropriate to different disciplines or functional areas of responsibilities and/or various phases of response, e.g., containment and control, disposal and recovery. Identify any gaps in the resulting program which must be covered by supplementary inservice training. Verify that the overall program meets any certification requirements as previously defined.
7. Establish a program for maintaining a cadre of adequately and appropriately trained personnel by:
 - Providing for training of multi-disciplinary instructors to present inservice classes and assist in the conduct of intermediate and advanced training courses.
 - Coordinating training courses developed and conducted by government agencies and private organizations.
 - Obtaining current information on the development of new hazardous materials training programs.
 - Send key personnel to appropriate hazardous materials courses.

DELIVERABLES

- Work plan
- List of available training courses
- Report identifying multi disciplinary training needs.
- Curriculum implementation plan
- Certification criteria

CONSIDERATIONS AND EXAMPLES

The course published by the National Fire Protection Association is a good basic orientation program. It should be followed up with a course such as the one outlined on the next page.

Training and education should be a continuous element of the management program. It should consist of the most up-to-date information available.

Various companies will either conduct training classes or provide information to be incorporated in local programs. A sample list of these agencies and organizations is found in Appendix III.

INTERMEDIATE HAZARDOUS MATERIALS COURSE CURRICULUM

WEEK I

DAY IINTRODUCTIONHAZARDOUS MATERIALS

A. Classes of Fires

1. Class A
2. Class B
3. Class C
4. Class D

B. Identifications of Hazardous Materials

1. DOT classification
 - a. Explosive materials
 - b. Compressed gases
 - c. Flammable liquids and solids
 - d. Chemically reactive materials
 - e. Biologically active materials
 - f. Radioactive materials
2. 704M system

C. Tactical Information Systems

1. CHEMTREC
2. Chemical Information Systems
3. Reference materials

MATTER AND ENERGY

- A. Matter Defined
- B. Units of Measurement
 - 1. Length
 - 2. Volume
 - 3. Mass
- C. Density of Matter
 - 1. Vapor density
 - 2. Specific gravity
- D. Energy Defined
- E. Temperature
- F. Pressure
- G. Effects of Heat on Matter
 - 1. Heat - calorie, BTU
 - 2. Conduction
 - 3. Convection
 - 4. Radiation
 - 5. Heat capacity
 - 6. Changes in phase
 - 7. Coefficient of expansion
- H. Flammability
 - 1. Flashpoints
 - 2. Kindling points

DAY 2

- I. The Gaseous State
 1. Boyle's Law
 2. Charles Law
 3. BLEVE
- J. Hazards of Cryogens
 1. Critical Temperature
 2. Critical Pressure
 3. Critical Volume

SUBDIVISIONS OF MATTER

- A. Elements and Compounds
 1. Physical properties
 2. Chemical properties
- B. Atoms, Molecules and Ions
- C. Chemical Formulas
 - The periodic chart
 - a. Metals
 - b. Non-metals

PRINCIPLES OF CHEMICAL REACTIONS

- A. Types of Chemical Reactions
 1. Synthesis reactions
 2. Decomposition reactions
 3. Single-replacement reactions
 4. Double-replacement reactions
 5. Oxidation-reduction reactions

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B. Rate of Chemical Reactions

1. Nature of material
2. Subdivision of the reactants
3. State of aggregation
4. Concentration of reactants
5. Activation energy
6. Temperature
7. Catalysis

C. Chemistry of Combustion

D. Chemistry of Fire Extinguishment

1. Water
2. Fire extinguishment agents
3. Foams

DAY 3

CHEMISTRY OF SOME ELEMENTS

A. Oxygen

1. LOX
2. Principles of oxidation

B. Hydrogen

1. Liquid hydrogen
2. Hydrogen - oxygen explosions
3. Activity series

C. Fluorine, Chlorine, and Bromine

1. Fluorine (oxidizing ability)
2. Chlorine
3. Bromine

D. Carbon

E. Phosphorus

1. Allotropes
2. Compounds

F. Sulfur

1. Compounds
2. Mercaptans

TRIP TO CHLORINE FACILITY

- A. "A" Kit demonstration
- B. "B" Kit demonstration
- C. "C" Kit demonstration

DAY 4

CHEMISTRY OF CORROSIVE MATERIALS

A. Acids

1. Strength of acids
2. Reactions of acids
3. Other acids

B. Alkalies (bases)

1. Strength of bases
2. Reactions of alkalies
3. Other alkalies

CHEMISTRY OF WATER REACTANT MATERIALS

- A. Alkali Metals
 - I. Amalgams
 - 2. NAK
- B. Magnesium, Zirconium, Titanium, Aluminum and Zinc
- C. Organometallic Compounds
- D. Hydrides
- E. Peroxides
- F. Nitrides, Carbides and Phosphides
- G. Water reactive Inorganic Chlorides
- H. Water-reactive Organic Compounds

PLASTIC, RESINS AND FIBERS

- A. Polymers
 - I. Fire hazards
 - 2. Toxic hazards
- B. Monomers
 - I. Fire hazards
 - 2. Toxic hazards

DAY 5

TOXIC MATERIALS

- A. Basics of Toxicity
- B. Measurement of Toxicity
 - I. LD 50

- 2. LC 50
- 3. TLV
- C. Carbon Monoxide and Carbon Dioxide
- D. Hydrogen Cyanide
- E. Hydrogen Sulfide and Sulfur Dioxide
- F. Oxides of Nitrogen
- G. Ammonia
 - I. Spill control
 - 2. Properties and specifications
- H. Toxic Heavy Metals
- I. Protection from Toxic Materials

PESTICIDES

- A. Labeling
- B. Hazards
- C. Shipping
- D. Containers
- E. Poisoning
 - I. Symptoms
 - 2. Treatment
- F. Preplanning
 - I. Facilities
 - 2. Resources
 - 3. Demonstrations

EXERCISE IN USE OF PROTECTIVE GEAR

WEEK 2DAY 1OXIDATION - REDUCTION REACTIONS

- A. Principles of Oxidizer and Fuel
- B. Strength of Oxidizers
- C. Oxidizer Hazards
- D. Peroxides
- E. Ammonium Compounds
- F. Permangantes
- G. Ammonium Nitrate
- H. Nitrates
- I. Hydrazine (a reducing agent - fuel)

DEMONSTRATION IN PATCHING OF SMALL CONTAINERSRADIOACTIVE MATERIAL

- A. Nuclei, Isotopes and Radioactivity
- B. Types of Radiation
- C. Units of Measurement
- D. Effects of Radiation
- E. Equipment Demonstrations
- F. Exercise in Monitoring Radioactive Materials

DAY 2**ORGANIC COMPOUNDS**

- A. Classification of Organic Compounds
- B. Hazards of Organic Compounds
 - 1. Fire
 - 2. Toxicity
- C. Gaseous Hydrocarbons
 - 1. LPG gas
 - 2. Acetylene
- D. Aromatic Hydrocarbons
- E. Alcohols
- F. Organic Peroxo Compounds
- G. Miscellaneous Organic Compounds
- H. Containment of Flammable Liquid Spills

TRIP TO LPG FACILITY**DAY 3****CHEMICAL EXPLOSIVES**

- A. Classes of Explosives
 - 1. Terms
 - 2. DOT classes
 - 3. Nitroglycerine
 - 4. Dynamite
 - 5. TNT

- B. Primary Explosives
- C. Homemade Bombs
- D. Gaseous Explosions

LOCAL BOMB SQUAD TECHNICIAN SPEAKER

DEMONSTRATION OF BOMB DISPOSAL UNIT

DAY 4

TRUCKS

- A. Truck Specifications
- B. Truck Identification
 - 1. MC 301
 - 2. MC 306
 - 3. MC 311/312

TRIP TO TRUCK FACILITY

RAILROADS

- A. Types of Cars
- B. Car Specifications
- C. Waybill
- D. Attack Methods

TRIP TO RAILYARD

DAY 5CHEMICAL DEMONSTRATIONSNEUTRALIZATION EXERCISE

TASK SIX
PREVENTION PROGRAM

TASK #6: PREVENTION PROGRAM

OBJECTIVES:

Prevention often times is a matter of awareness. To promote this the emergency manager should establish a program to reduce the number of hazardous materials incidents within the jurisdiction by: clarifying legal rights and responsibilities; strengthening the existing enforcement program;

- Supporting industrial hazardous materials programs
- Orientating judges and other officials to the nature and impact of hazardous materials incidents
- Increasing public awareness.

A hazardous materials incident prevention program can be modeled upon standard fire prevention or public safety programs and practices. First, the Technical Advisory Committee (TAC), with the assistance of legal counsel should review and summarize existing laws , i.e., Code of Federal Regulations #49, under which enforcement and prevention activities must function (drafting of new legislation may not always be the best way to deal with the problems). In the light of the review, enforcement programs should be examined and strengthened where necessary. Next, an industrial relations program should be organized. The purpose of this program would be to establish a liaison with the "key hazard" companies, making sure they are at least in compliance with the law. Inform them of program activities, work out incident response plans with them and assist them in conducting their own training and safety programs. Finally, a small scale public awareness campaign should be initiated. The objective of which is to inform the public of program activities and increase public awareness of the dangers inherent in dealing with hazardous materials.

ACTIVITIES

1. Plan the work to be done to establish a prevention program. Identify the specific activities to be carried out, the results expected, and the deliverable products to be produced.
2. Review and summarize the local, state, and federal laws which define authority and responsibility with respect to hazardous materials.
3. Review the enforcement program and strengthen it as required:
 - A. Identify agencies which have authority and responsibility for enforcing hazardous materials laws. Determine their formal and informal policies concerning enforcement of these laws, and estimate their level of enforcement activity.
 - B. Identify the state and federal agencies which have enforcement authority in a specific geographic location. Clarify the procedures and policies for activating these agencies.
 - C. Establish specific goals and objectives for enforcement of hazardous materials laws in the jurisdiction. Adopt any hazardous materials laws which may be appropriate for enforcement within a jurisdiction.
 - D. As required, establish, strengthen, or redirect local authority in the use of local, state, and federal enforcement agencies.

- E. Work with the enforcement agencies and prosecuting officials, as required, to obtain their concurrence and support in implementation of the programs.
4. Identify the major industries and organizations, constituting potential "key hazards", which may be appropriate subjects for a hazardous materials industrial relations program. For each such organization:
 - A. Establish formal liaison with key persons in the organization.
 - B. With approval of the agency, review their hazardous materials safety, prevention, response, and containment policies and programs, and discuss perceived limitations.
 - C. Explain to liaison personnel the local hazardous materials programs in terms of:
 - Resources available to the area and to the organization from or through the jurisdiction.
 - Response capabilities of the jurisdiction and other agencies and companies.

- Specific response plans pertinent to the organization.

D. Help the liaison personnel to organize internal informational and training programs.

5. Establish a program to inform the public of the hazardous materials management project and to generally make them aware of the problems and dangers in dealing with hazardous materials. Utilize press releases, newspaper articles, media announcements, and other methods as necessary and appropriate.

6. Prepare a report summarizing the findings of the legal review, the industrial relations program, and the public relations program.

DELIVERABLES

- Work plan
- Summary report of findings and programs

CONSIDERATIONS AND EXAMPLES

It is essential that communications between public and private agencies be open and direct at all times. Misunderstandings frequently occur between these sectors and could result in a strained working environment that may exacerbate rather than alleviate a hazardous materials incident.

CONCLUSION

CONCLUSION

The transportation of hazardous materials is increasing daily in communities all over the country. As accidents do occur during the transportation of these commodities, it is imperative that adequate prevention enforcement and response programs are available to protect our citizens and mitigate long term damage to our environment.

The development of a comprehensive Hazardous Materials Management System requires a serious commitment by the local government entity instituting the program, and the cooperation of emergency management, police, and fire agencies to succeed.

This guide was produced to provide emergency managers with information delineating one method of developing a Hazardous Materials Management System that has proven successful in one jurisdiction.

APPENDIX I

REFERENCE LIBRARY LIST

APPENDIX I
REFERENCE LIBRARY LIST

	<u>Cost (1981)</u>
ACCIDENT REPORTS National Transportation Safety Board Washington, D. C. 20591	Free
AMERICAN NATIONAL STANDARD FOR THE STORAGE & HANDLING OF ANHYDROUS AMMONIA (Standard K61.1) American National Standards Institute, Inc. 1430 Broadway New York, New York 10018	
ANALYSIS OF PROCEEDINGS OF THE NATIONAL TRANSPORTATION SAFETY BOARD Into Derailments of Hazardous Materials, April 4 through 6, 1978 National Transportation Safety Board Washington, D. C. 20591	Free
BASIC PRINCIPALS OF RADIATION PROTECTION-TP 30 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
BIOLOGICAL AFFECTS OF NEUTRONS - TP 38 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
BIOLOGICAL ETHENICS OF IONIZING RADIATION - TP 37 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
CHRIS MANUAL - HAZARDOUS CHEMICAL DATA Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402 (Stock #050-012-00147-2)	
CHEMICAL ENGINEERS HANDBOOK, 5th Edition By Robert H. Perry & Cecil H. Chilton McGraw - Hill Book Company 1221 Avenue of The Americas New York, New York 10020	56.50
CHEMICAL SAFETY SLIDE RULE National Safety Council 444 N. Michigan Avenue Chicago, Illinois 60611 Stock #129.91-9	6.00

CHEMISTRY OF HAZARDOUS MATERIALS	20.00
By Meier Prentice - Hall, Inc. 200 Old Tappan Road Old Tappan, New Jersey 07675	
CHLORINE MANUAL	3.00
The Chlorine Institute, Inc. 342 Madison Avenue New York, New York 10017	
COMPRESSED GASES & CRYOGENICS REPORT	144.00/YR
Van Nostrand Reinhold Company 7625 Empire Drive Florence, Kentucky 41042	
CONTROL OF INTERNAL RADIATION HAZARDS - TP 51	Free
Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	
CORRELATION OF EXPOSURE DOSE & ABSORBED DOSE - TP 52	Free
Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	
CORRELATION OF UNITS OF ACTIVITY & EXPOSURE - TP 53	Free
Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	
CRITICAL REVIEWS IN TOXICOLOGY, Vol. 9	80.00
CRC Press, Inc. 2255 Palmbeach Lakes West Palmbeach, Florida 33409	
DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS	96.00
By N. Irving Sax Van Nostrand Reinhold Company Division of Litton Education of Publishing, Inc. 135 West 50th Street New York, New York 10002	
DEALING WITH CHLORINE EMERGENCIES - FIRE	1.25
The Chlorine Institute, Inc. 342 Madison Avenue New York, New York 10017	

DETERMINATION OF HALFLIFE (LA 13)-TP 265 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
DIAGNOSTIC X-RAY EQUIPMENT-TP 65 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
DIRECTORY OF CHEMICAL PRODUCERS Stanford Research Institute International Attention: Elaine Klaproth 333 Ravenswood Avenue Menlo Park, California 94025	595.00
DO's AND DON'TS Publication #4, July 19, 1978 Institute of Makers of Explosives 420 Lexington Avenue New York, New York 10017	Free
EFFECTS OF EXPOSURE TO TOXIC GASES, 2nd Edition by William Braker Matheson Lyndhurst, N. J.	
EFFECTS OF RADIATION ON LIVING TISSUE & CHEMICAL STRUCTURE-TP 67 Training Resource Center (HFX-70) DTMA, BRH, FDA 5600 Fishers Lane Rockville, Maryland 20857	Free
EMERGENCY HANDLING OF HAZARDOUS MATERIAL IN SURFACE TRANSPORTATION Bureau of Explosives Association of American Railroads 1920 L Street Washington, D.C. 20036	
EMERGENCY HANDLING OF RADIATION ACCIDENT CASES Department of Energy Assistant Secretary for Environment Washington, D. C. 20545	Free
EMERGENCY REPAIR OF PRESSURE TANK CAR LEAKS Philipps Petroleum Bartlesville, Oklahoma 74003	Free

EXPLOSIVES & TOXIC HAZARDOUS MATERIALS By James Meidl Glencoe Publishing Company, Inc. 17337 Ventura Blvd. Encino, California 91316	17.95
FARM CHEMICALS HANDBOOK, 1980 Meister Publishing Company 37841 Euclid Avenue Willoughby, Ohio 44094	35.00
FEDERAL ACTIVITIES AND TOXIC SUBSTANCES Toxic Integration Information Series U.S. Environmental Protection Agency Office of Pesticides & Toxic Substances Washington, D.C. 20460	Free
FIRE OFFICERS GUIDE TO DANGEROUS CHEMICALS National Fire Protection Association 470 Atlantic Avenue Boston, Massachusetts Number FSP-36A	
FIRE PROTECTION GUIDE ON HAZARDOUS MATERIALS National Fire Protection Association 470 Atlantic Avenue Boston, Massachusetts 02110 Attn: Publications Sales Department	14.00
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GUIDE FOR SAFETY AND THE CHEMICAL LABORATORY Manufacturing Chemists Association Van Nostrand Reinhold Company 450 West 33rd Street New York, New York 10001	
HIGHLY HAZARDOUS MATERIALS SPILLS & EMERGENCY PLANNING Marcel Dekker, Inc. 270 Madison Avenue New York, New York 10015	29.75

HANDBOOK FOR CHEMICAL TECHNICIANS By Howard J. Strauss, PhD McGraw - Hill Book Company PO Box 400 Hightstown, New Jersey 08520	59.95
HANDBOOK OF ANALYTICAL TOXICOLOGY GENERAL DATA CRC Press, Volume I - Section A Volume 2 - Section B 2000 NW 24th Street Boca Raton, Florida 33431	59.95
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HAZARDOUS CHEMICAL SPILL CLEANUP Noyes Data Corporation Noyes Building Park Ridge, N. J. 07656	
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Attn: Traffic Department
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Washington, D.C. 20036

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Greenwich Office Park 5
Greenwich, Connecticut 06830

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By James H. Meidl
Glencoe Publishing Company, Inc.
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Encino, California 91316

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American Trucking Association, Inc.
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Washington, D.C. 20036

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Research and Special Programs Administration
Washington, D.C. 20590

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Complete Pocket Digest
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Chicago, Illinois 60660

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National Fire Protection Association
470 Atlantic Avenue
Boston, Massachusetts 02110

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Riverside, New Jersey 08370

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MEDICAL FIRST AID GUIDE FOR USE IN ACCIDENTS INVOLVING DANGEROUS GOODS Unipub 345 Park Avenue South New York, New York 10010	16.50
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NIOSH REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES GPO Stock #017-033-00346-7 Superintendent of Documents U. S. Government Printing Office Washington, D. C. 20402	22.00
NIOSH/OSHA POCKET GUIDE TO CHEMICAL HAZARDS GHEW Publication #78-210, GPO Stock #017-033-00342-4 Superintendent of Documents U. S. Government Printing Office Washington, D. C. 20402	5.50
OCCUPATION EXPOSURE LIMITS FOR AIRBORNE TOXIC SUBSTANCES Unipub 345 Park Avenue South New York, New York 10010	
OIL SPILLS AND SPILLED HAZARDOUS SUBSTANCES U. S. Environmental Protection Agency Oil and Special Materials Control Division 401 M Street, SW Washington, D.C. 20460	Free
OIL & HAZARDOUS MATERIALS TECHNICAL ASSISTANCE DATA SYSTEM U.S. Environmental Protection Agency Oil & Special Materials Control Division Office of Water Program Operations Washington, D. C. 20460	Free
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REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES Department of Health Education and Welfare National Institute of Occupational Safety and Health 1600 Clifton Road, NE Atlanta, Georgia 30333	Free
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THE CONDENSED CHEMICAL DICTIONARY By Gessner G. Hawley Van Nostrand Reinhold Company 450 West 33rd Street New York, New York 10001	

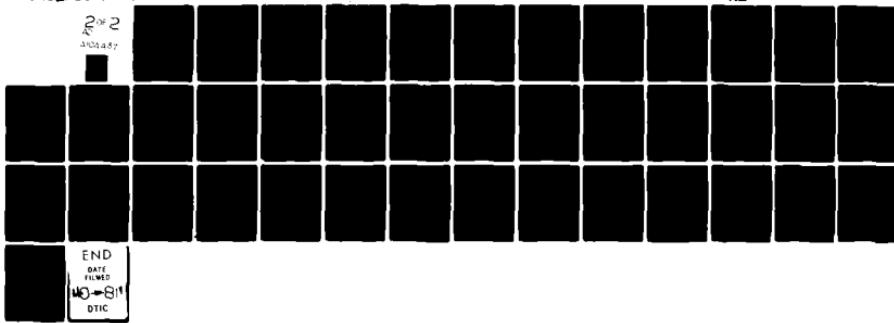
THE FIRE FIGHTERS HANDBOOK OF HAZARDOUS MATERIALS By Charles J. Baker Maltese Enterprises, Inc. PO Box 34048 Indianapolis, Indiana 46234	8.58
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TOXIC SUBSTANCES Control of Chemical Substances Inventory: Initial Inventory Industry Assistance Office U. S. Environmental Protection Agency 401 M Street, SW Washington, D.C. 20460	Free
TOXICOLOGY OF DRUGS & CHEMICALS William Deichmann & Horace W. Gerarde 4th Edition, Academic Press, Inc. Harcourt Brace Jovanovich Building 1001 Polk Street San Francisco, California 94109 ISBN 0-12-208858-1	36.00

APPENDIX II

RESPONSE UNIT INVENTORY

AD-A104 437 MULTONOMAH COUNTY OFFICE OF EMERGENCY MANAGEMENT POR--ETC F/6 13/12
HAZARDOUS MATERIALS MANAGEMENT SYSTEM. A GUIDE FOR LOCAL EMERGE--ETC(U)
JUL 81 M T LEE, P G ROE DCPA01-79-C-0323
UNCLASSIFIED MCDEM-0779 NL

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2021287



END
FEDERAL
NO - 81
DTIC

APPENDIX II
HAZARDOUS MATERIALS RESPONSE UNIT INVENTORY

<u>ITEM</u>
Air Tanks
Air Tanks, Positive Pressure with Braces and Regulator
Ax, Firefighting
Bag, Resusci Folding Ambu
Binoculars, 8 x 24 Power
Blankets
Bombs, Smoke
1/2 minute
1 minute
5 minute
Boots, Rubber
Boots, Turnout
Broom, Kitchen
Cabinet, File
Cables, Booster
Camera, 35 mm with flash and lens attachment
Charger, Radio
Desk, 110 Volt
Vehicular, 12 Volt
Cleaner, Hand
Coveralls, Blue
Coveralls, Flame Retardant
Detectors, Infrared Probeye
Detectors, Radiation
Draeger Kit, with Tubes
Duck Seal
Educator, foam
Extinguisher, ABC Dry Chemical
Extinguisher, Halon 1211
Extinguisher, Metal-X
Foam, Alcohol 6%
Kit, First Aid
Airways
Applicators, Cotton Tipped
3"
6"
Bandage, Compress
2"
3"
4"
Bandages, Gauze
1"
2"
Bandages, Stretch
1"
2"

Bandages, Zip Strip
Cotton, Sterile
Cream, First Aid
Cuff, Blood Pressure
Depressors, Tongue
Inhalants, Ammonia
Instant Glucose
Isopropyl Alcohol Rubbing Compound
Lotion, Calamine
Masks, Oxygen
Ointment, Antiseptic and Burn
Pads
Eye
Gauze
 2 X 2
 3 X 3
 4 X 2
Sanitary
Pins, Safety
Rolls, Gauze
 1"
 2"
Scissors, Assorted
Splints
Splints, Wire
Stethoscope
Tape, Adhesive
 1/2"
 1"
 2"
 3"
Thermometers
Tourinquet and Forceps
Wipes, Wound
Flares
Gloves
 Leather
 Neoprene
 Plastic - PVC
 Rubber - Natural
Goggles
Heater
Helmets, Acid with Face Shields
Helmets, Fire
Meter, Hydrocarbon and Oxygen with 5' Brass Probes
Jackets, Turnout
Light, Extension
Masks, Oxygen Face
Monitors, Organic Vapor
Pants, Turnout
Pick Handle
Pick Head
Pillows
Plug-n-dike - 48 Pounds

Plugs, Oak
3/4" - 4"
Radio, CB 40 Channel
Radio, UHF 2 Channel Portable
Radio, UHF 8 Channel Portable
Radio, UHF Mobile Base
Radio, VHF 8 Channel Portable
Radio, VHF Mobile Base
Rope
Rope, Nylon
Scanner
Sheets
Sheet Rolls, Plastic
Shovels
 Square
 Round End
Soda Ash
Suits, Acid
Suits, Fire Entry
Suits, Incapsulated
Suits, Incapsulated with Case
TV, Color
Tank, Resuscitator
Tape, Flagging
Telephone, Mobile
Tools, Non-Sparking
 Bars, Pry
 Chisel, Coal
 Small
 Medium
 Crowbar
 Medium
 Small
 Hammer
 Ballpeen
 Medium
 Large
 Chipping
 Sledge
Pliers, Battery
Scoop, Shovels
Scrapers
 Short Handled
 Long Handled
Screwdriver
 Phillips
 8"
Wrench
 Crescent
 10"
 12"
 15"

Pipe

10"
14"
18"

Tools, Regular

Die Set
Chisel, Coal
Level
Small

Pliers

Battery
Dike
Electric Wire
Side Cutters
Vise Grip
7"

Point Gauge Tool

Punches, Center

Saw, Hack with Extra Blades

Screwdriver

Phillips
5"
6"
7"
12"

Regular

Small
Medium
Square End
7"
9"
15"

Shovel

Square Nose
15"
20"

Socket Set

1/8"
1/4"
1/2"

Tow Clamps

Wrench

Allen
Box
7/16-3/8
9/16-1/2
Crescent
6"
12"
15"

Open End
19/32-11/16
5/16-1/4
7/16-3/8
7/16-1/2
9/16-1/2
3/4-5/8

Open End Box
1/4
5/8
7/8
3/4
9mm

Pipe
10"

Towels
Water, light 6%

APPENDIX III

LIST OF AGENCIES AND ORGANIZATIONS PROVIDING TRAINING PROGRAMS

HAZARDOUS MATERIALS TRANSPORTATION COURSES AND SEMINARS

College and University Courses and Seminars

Alabama

University of Alabama
 Department of Commerce and Business
 Dr. Stanley J. Hille
 Box J
 University, Alabama 35486
 (205) 348-6100

University of South Alabama
 Department of Marketing and Transportation
 Mr. Richard Mathisen
 Mobile, Alabama 36688
 (205) 460-6411

Louisiana

Louisiana State University
 Nuclear Science Center
 Agricultural/Mechanical Center
 Dr. Curry
 Baton Rouge, Louisiana 70803
 (504) 388-2163

Michigan

Michigan State University
 School of Packaging
 Dr. Hugh Lockhart
 East Lansing, Michigan
 (517) 353-6462

California

University of California - Berkeley
 Institute of Transportation/Traffic Engineering
 Mr. John Schremp
 109 McLaughlin Hall
 Berkeley, California 94720
 (415) 642-7350

Golden Gate University
 Transportation Program
 Mr. Korth
 536 Mission Street
 San Francisco, California 94105
 (415) 391-7800 ext. 279

New York

Franklin D. Roosevelt
 Institute of Maritime Studies
 Mr. Ron Bohn
 15 State Street
 New York, New York 10004

Suffolk County Comm. College
 Mr. Joseph E. Galvin
 533 College Road
 Selden, New York 11784
 (516) 233-5277

Syracuse University
 School of Marketing/Transport
 The Franklin Program
 Dr. Theodore O. Wallin
 129 College Place
 Syracuse, New York 12310
 (315) 423-2916

Colorado

Metropolitan State College
 School of Professional Studies
 Mr. William B. Rourke, Jr.
 1006 11th Street, Box 30
 Denver, Colorado 80204
 (303) 629-8310

University of Niagara
 Institute of Transportation
 Travel and Tourism
 Dr. Samuel I. Porrath
 Buffalo, New York 14209
 (716) 285-1212 ext. 311

Connecticut

Norwalk Community College
 Department of General Business
 Mr. Milton Goldstein
 333 Wilson Avenue
 Norwalk, Connecticut 06854
 (203) 853-2040

Ohio

Ohio State University
 Continuing Education
 Columbus, Ohio 43210
 (614) 422-1311

Florida

Florida International University
 School of Business
 Mr. J. A. F. Nicholes
 SBOS-DM346
 Miami, Florida 33199
 (305) 522-2571

Miami - Dade Community College
 South Campus, Aviation Department
 Mr. Kane
 11011 SW 104th
 Miami, Florida 33156
 (305) 596-1154

University of Cincinnati
 Evening College
 Mr. Kenneth Dickens
 Cincinnati, Ohio 45221
 (513) 475-4431

Utah

LDS Business College
 Special Courses and Conference
 Mr. Ross Derbridge
 411 East South Temple
 Salt Lake City, Utah 84111
 (801) 363-2765

Florida Junior College
 Kent Campus
 Transportation Department
 Mr. Paul A. Halloran
 Jacksonville, Florida 32205
 (904) 387-8167

Washington

Seattle Community College
 Business and Commerce Division
 Mr. Phil Running
 9600 College Way, North
 Seattle, Washington 98103
 (206) 634-4436

University of Miami
Ryder Program and Transportation
Dr. Anthony Cantanese
1541 Brescia
Miami, Florida 33144
(305) 284-2901

Iowa

Iowa State University
Department of Environmental Health and Safety
Industrial Education
Dr. Jack Beno
Building 208-C
Ames, Iowa 50010

Northern Iowa Area Community College
Department of Trade and Industry
Mr. Ted Crawford
500 College Avenue
Mason City, Iowa 50401
(515) 421-4355

Wisconsin

Northeast Wisconsin Tech. Ins.
Dept. of Marketing/Business
Mr. E. R. DeRoche
2740 West Mason Street
Green Bay, Wisconsin 54303
(414) 423-3125

Univ. of Wisconsin - Stout
Department of Packaging
Mr. Marvin Kufahl
Menomie, Wisconsin 54751
(715) 232-2295

Kansas

University of Kansas
Radiation Safety Office
Dr. Friesen
Lawrence, Kansas 66045
(913) 864-4089

Colleges and Other Institutes Offering Hazardous Materials Courses

Alabama

Alexander City State Junior College
Fire Science Department
Paul Blackwell
Cherokee Road
P.O. Box 699
Alexander City, Alabama 35010
(205) 234-6346

George C. Wallace
State Community College
Fire Science Department
Michael Houghland
P. O. Drawer 1049
Selma, Alabama 36701
(205) 875-2634, Ext. 31

Alaska

Anchorage Community College
Fire Science Program
James Evans
2455 Providence Drive
Anchorage, Alaska 99504
(907) 279-6602

Arizona

Arizona College of Technology
Fire Science Department
William Butterly
Route 97
Vineciman, Arizona 85292
(602) 356-7864

Cochise College
Douglas Campus
Fire Science Department
Richard Seals
Douglas Arizona 85607
(602) 364-7943

Cochise College
Sierra Vista Campus
Fire Science Department
Richard Seals
901 Columbo
Sierra Vista, Arizona 85635
(602) 934-2211

Eastern Arizona College
Fire Science Department
Ralph Orr
Thatcher, Arizona 85552
(602) 428-1133

Glendale Community College
Fire Science Department
Renault Catalano
600 West Oliver Avenue
Glendale, Arizona 85301
(602) 934-2211

Pima Community College
Fire Science Department
Ignacio Garcia
2202 West Anklam Road
Tucson, Arizona 85709
(602) 884-6693

Mohave Community College
 Vincent Salmon
 1971 Lageron Avenue
 Kingman, Arizona 86401
 (602) 757-4331

Phoenix College
 Fire Science Department
 Robert F. Noll
 1202 West Thomas Road
 Phoenix, Arizona 85013
 (602) 264-2492

Scottsdale Community College
 Fire Science Department
 Ed Gates
 9000 East Chaparral Road
 Scottsdale, Arizona 85253

California

Allan Hancock College
 Fire Science Department
 Robert Pile
 800 S. College Drive
 Santa Maria, California 93454
 (805) 922-6966

American River College
 Placerville Campus
 Fire Science Department
 Art Scott
 106 Placerville Drive
 Placerville, California 95667
 (916) 622-7575

Bakersfield College
 Fire Science Department
 Joseph Angelo
 2101 K Street Mall
 Bakersfield, California 93305
 (805) 395-4481

Butte College
 Fire Science Department
 Fred Allen
 Route 1 Box 183A
 Oroville, California 95965
 (916) 895-2401

American River College
 Fire Science Department
 Louis Quint
 4700 College Oak Drive
 Sacramento, California 95841
 (916) 484-8316

Antelope Valley College
 Fire Science Department
 Frank C. Roberts
 3041 West Avenue K
 Lancaster, California 93534
 (805) 943-3241

Barstow College
 Fire Science Department
 Jack Sherman
 2700 Barstow Road
 Barstow, California 92311
 (714) 252-2411

Cabrillo College
 Fire Science Department
 David Barbin
 6500 Soquel Drive
 Aptos California 95003
 (408) 425-6447

Cerro Coso Community College
Fire Science Department
James Sirman
Ridgecrest, California 93555
(714) 375-5001

Chaffey College
Fire Science Department
Eddie Smith
5885 Haven Avenue
Alta Loma, California 91701
(714) 987-1737

Cosumnes River College
Fire Science Department
Cecie Fontanoza
8401 Center Parkway
Sacramento, California 95823
(916) 421-1000

College of the Desert
Fire Science Department
Bill Kroonen
43-5000 Monterey Avenue
Palm Desert, California 92260
(714) 346-8041

El Camino College
Fire Science Department
Ed Muraski
16007 Crenshaw Blvd.
Via Torrance, California 90506
(213) 532-3670

Glendale College
Fire Science Department
Dave Leek
1500 N. Verdugo Road
Glendale, California 91208
(213) 240-1000

Chabot College
Fire Science Department
Glenn Bass
25555 Hesperian Blvd.
Hayward, California 94545
(415) 782-3000

Columbia Junior College
Fire Science Department
J. Amundsen
P.O. Box 1849
Columbia, California 95310
(209) 532-3141

Cuesta College
Fire Science Department
Edwin M. Pearce
P.O. Box J Obispo
San Luis Obispo, Cal. 93406
(805) 544-2943

East Los Angeles College
Fire Science Department
M. S. Pena
1301 Brooklyn Avenue
Monterey Park, California 91754
(213) 265-8650

Fresno City College
Fire Science Department
Roy Edwards
1101 East University Avenue
Fresno, California 93741
(209) 442-4600 ext. 8517

Grossmont College
Fire Science Department
Dave Lien
8800 Grossmont College Drive
El Cajon, California 92020
(714) 465-1700

Hartnell College
Fire Science Department
Thomas C. Campbell
156 Homestead Avenue
Salinas, California 93901
(408) 758-7261

Indian Valley Colleges
Fire Science Department
Howard Stillwell
1800 Ignacio Blvd.
Navato, California 94947
(415) 883-2211

Long Beach City College
Fire Science Department
Denny Pace
4901 E. Carson Street
Long Beach, California 90808
(213) 599-2421

Los Angeles Harbor College
Fire Science Department
Van G. Waring
1111 Figueroa Place
Wilmington, California 90744
(213) 835-0161

Los Medanos College
Fire Science Department
Carlton Williams
2700 E. Leland Road
Pittsburg, California 94565
(415) 439-2181, x273

Merced College
Fire Science Department
Lee McCabe
3600 M. Street
Merced, California 95340
(209) 723-4321, x282

Imperial Valley College
Fire Science Department
W. D. Rudolph
P.O. Box 158
Imperial, California 92251
(714) 352-8320

Lake Tahoe Community College
Fire Science Department
Jim Leavitt
P.O. Box 14445
S. Lake Tahoe, California 95702
(916) 541-4660

Los Angeles City College
Fire Science Department
Stanley Schall
855 N. Vermont Avenue
Los Angeles, California 90029
(213) 663-9141, x207

Los Angeles Valley College
Fire Science Department
George Yochum
5800 Fulton Avenue
Van Nuys, California 91401
(213) 781-1200
College of Marin
Fire Science Department
Joseph E. Berruezo
Kentfield, California 94909
(415) 454-3962, x298

Merit College
Fire Science Department
K. L. Giles
12500 Campus Drive
Oakland, California 94619
(415) 531-4911, x296

Miramar College
Fire Science Department
R. H. Rossmaessler
10440 Black Mountain Road
San Diego, California 92126

Monterey Peninsula College
Fire Science Department
Jim Cardwell
980 Fremont Blvd.
Monterey, California 93940
(408) 649-1150, x405

Mt. San Jacinto College
Fire Science Department
Benton Caldwell
21-400 Highway 79
San Jacinto, California 92383
(714) 654-7321

Oxnard College
Fire Science Department
John Dell
534 South A Street
Oxnard, California 93030
(805) 486-7315

Pasadena City College
Fire Science Department
Victor E. Stephens
1570 E. Colorado Blvd.
Pasadena, California 91106
(213) 578-7123

College of Redwoods
Fire Science Department
Don Peterson
Eureka, California 95501
(707) 443-8411

Modesto Junior College
Fire Science Department
Eldon L. Helm
College Avenue
Modesto, California 95350
(209) 524-1451, x226

Mt. San Antonio College
Fire Science Department
John G. O'Sullivan
1100 N. Grand Avenue
Walnut, California 91789
(714) 598-2811, x252

Nappa College
Fire Science Department
Calvin Russell
2277 Nappa-Vallejo Highway
Nappa, California 94558
(707) 252-8211

Palomar College
Fire Science Department
R. A. Jackson
1140 W. Mission
San Marcos, California 92069
(714) 744-1150, x456

Porterville College
Fire Science Department
Edward M. Buckles
900 S. Main Street
Porterville, California 93257
(209) 781-3130

Rio Hondo College
Fire Science Department
Eugene Mahoney
3600 Workman Mill Road
Whittier, California 90608
(213) 692-0921

Riverside City College
Fire Science Department
Bob Holstrom
4800 Magnolia Avenue
Riverside, California 92506
(714) 684-3240

City College of San Francisco
Fire Science Department
Martin Kilgariff
50 Phelan Avenue
San Francisco, California 94112
(415) 239-3359

San Jose City College
Fire Science Department
Robert G. Egan
2100 Moorpark Avenue
San Jose, California 95128
(408) 298-2181, x435

Santa Ana College
Fire Science Department
Bill Ogden
Seventeenth at Bristol
Santa Ana, California 92706
(714) 835-3000, x255

Santa Monica College
Fire Science Department
Paul Stein
1815 Pearl Street
Santa Monica, California 90405
(213) 396-5277

College of the Sequoias
Fire Science Department
Leroy A. Berg
915 S. Mooney Blvd.
Visalia, California 93277
(209) 733-2050, x208

San Bernardino Valley College
Fire Science Department
Ed Temby
701 S. Mt. Vernon Avenue
San Bernardino, California 92403
(714) 885-0231

San Joaquin Delta Com. College
Fire Science Department
Joe Daley
5151 Pacific Avenue
Stockton, California 95207
(209) 478-2011, x201

College of San Mateo
Fire Science Department
Bob Dawson
1700 W. Hillsdale Blvd.
San Mateo, California 94402
(415) 574-6162

Santa Barbara City College
Fire Science Department
Melvin Elkins
721 Cliff Drive
Santa Barbara, California 93109
(805) 965-0581

Santa Rosa Junior College
Fire Science Department
John Healy
1501 Mendocino Avenue
Santa Rosa, California 94501
(707) 527-4441

Shasta College
Fire Science Department
John White
1065 N. Old Oregon Trail
Redding, California 96001
(916) 241-3523

Sierra College
Fire Science Department
Frank Strong
5000 Rocklin Road
Rocklin, California 95677
(916) 624-3333, x312

Solano Community College
Fire Science Department
Chuck Kimball
P.O. Box 246
Suisun City, California 94585
(707) 864-7000

West Hills College
Fire Science Department
James Butterworth
300 Cherry Lane
Coyalinga, California 93210
(209) 935-0801

Yuba College
Fire Science Department
Don Vedo
2088 N. Beale Road
Marysville, California 95901
(916) 742-7351, x215

Colorado

Aims Community College
Fire Science Department
Bill Adamson
Box 69
Greely, Colorado 80631
(303) 356-9600

El Paso Community College
Fire Science Department
2200 Bott Avenue
Colorado Springs, Colorado 80904
(303) 471-7546

College of Siskiyous
Fire Science Department
Bill Rowe
800 College Avenue
Weed, California 96094
(916) 938-4463

Victor Valley College
Fire Science Department
Charles A. Peterson
P.O. Drawer 00
Victorville, California 92392
(714) 245-4271, x255

West Los Angeles College
Fire Science Department
Marilyn Brock
4800 Freshman Drive
Culver City, California 90230
(213) 836-7110

Com. College of Denver, Redrocks
Fire Science Department
Bruce Birza
12600 W. Sixth Avenue
Golden, Colorado 80401
(303) 988-6160

Connecticut

State Tech Colleges of Connecticut
 Fire Science Department
 Lawrence M. Ford
 401 Flatbush Avenue
 Hartford, Connecticut 06106
 (203) 238-6587

University of New Haven
 Fire Science Department
 Peter Desio
 300 Orange Avenue
 West Haven, Connecticut 06516
 (203) 934-6301

Delaware

Delaware Tech & Community College
 Fire Science Department
 Mr. Buchanan
 Box 1260, Stanton Campus
 Newark, Delaware 19711
 (302) 368-6900

Delaware Tech & Com. Col., Kent
 Fire Science Department
 Lowell Barrett
 1823 N. DuPont Highway
 Dover, Delaware 19901
 (302) 678-4665

District of Columbia

University of District of Columbia
 Fire Science Department
 Mr. Ortiz
 4200 Connecticut Avenue, NW
 Washington, D. C. 20008
 (202) 282-7387

Florida

Broward Community College
 Fire Science Department
 Mr. Charles Redmond
 3501 SW Davies Road
 Fort Lauderdale, Florida 33314
 (305) 581-8700, x230

Edison Community College
 Fire Science Department
 Mr. R. V. Concilio
 College Parkway
 Fort Meyers, Florida 33901
 (813) 481-2121, x252

Miami-Dade Community College
 Fire Science Department
 Mr. James J. Guthrie
 11380 NW 27th Avenue
 Miami, Florida 33167
 (305) 577-6870

Florida Junior College
 Fire Science Department
 Mr. Nat Cole
 11991 Beach Blvd.
 Jacksonville, Florida 32216
 (904) 646-2060

Gulf Coast Community College
Fire Science Department
Mr. Lester Morley
5230 W. Highway 98
Panama City, Florida 32401
(904) 769-1551

Jacksonville Fire Academy
Fire Science Department
Mr. Max Hendrix
2345 Roselle Street
Jacksonville, Florida 32204
(904) 633-5588

Seminole Community College
Fire Science Department
Mr. James King
Sanford, Florida 32771
(305) 323-1450, x266

Valencia Community College
Fire Science Department
Rudolph During
P.O. Box 3028
Orlando, Florida 32802
(305) 299-5000

Georgia

Clayton Junior College
Fire Science Department
Mr. Roy Dobyns
Morrow, Georgia 30260
(404) 363-7590

Southern Technical Institute
Fire Science Department
Mr. J. R. Lee
534 Clay Street
Marietta, Georgia 30060
(404) 424-7371

Indian River Community College
Fire Science Department
Mr. Henry T. Christen
3209 Virginia Avenue
Fort Pierce, Florida 33450
(305) 464-2000, x449

Palm Beach Junior College
Fire Science Department
Mr. Donald C. Witmer
4200 Lyngress Avenue
Lake Worth, Florida 33460
(305) 965-8000

St. Petersburg Junior College
Fire Science Department
Mr. E. Z. Jackson
2465 Drew Street
Clearwater, Florida 33515
(813) 546-0011, x442

Georgia Fire Academy
Fire Science Department
Mr. William Lynch
534 Clay Street
Marietta, Georgia 30060
(404) 424-7315

Hawaii

Hawaii Community College
General Education and Public Service
Fire Science Department
Mr. Rex Yamasaki
1175 Manono Street
Hilo, Hawaii 96720
(808) 961-9311

Idaho

Boise State University
Fire Service Training
Mr. Tom Tyree
1910 College Blvd.
Boise, Idaho 83725
(208) 385-1011

Illinois

Black Hawk College
Fire Science Department
Mr. Simon Roberts
6600 34th Avenue
Moline, Illinois 61265
(309) 796-1311

College of DuPage
Mr. John Seffner
22nd Street at Lambert Road
Glen Ellyn, Illinois 60137
(312) 858-2800

Elgin Community College
Fire Science Department
1700 Spartan Drive
Elgin, Illinois 60120
(312) 697-1000

Carl Sandburg Community College
Mr. William D. Masters
P.O. Box 1407
Galesburg, Illinois 61401
(309) 344-2518

State Com. Col., East St. Louis
Fire Science Department
Mr. Willard Maytubley
417 Missouri Avenue
East St. Louis, Illinois 62201
(618) 875-9100, x356

Illinois Central College
Fire Science Department
Mr. Daryl Hartwig
P.O. Box 2400
Peoria, Illinois 61635
(309) 694-5580

Illinois Institute of Technology
Fire Science Department
Mr. Boyd Hartley
3300 S. Federal
Chicago, Illinois 60616
(312) 567-3150

Kishwaukee College
Fire Science Department
Mr. Ernest Harfst
Malta Road
Malta, Illinois 60150
(815) 825-2086

Lewis & Clark Community College
Fire Science Department
Mr. R. H. Patterson
Godfrey, Illinois 62035
(618) 466-3411

Moraine Valley Community College
Fire Science Department
Mr. Art Stoike
10900 S. 88th Avenue
Palos Hills, Illinois 60465
(312) 974-4300

Parkland College
Fire Science Department
Mr. Fred Johnson
2400 W. Bradley Avenue
Champaign, Illinois 61820
(217) 351-2200

Rock Valley College
Fire Science Department
Mr. Carl Cascio
301 N. Mulford Road
Rockford, Illinois 61101
(815) 226-3704

Joliet Junior College
Fire Science Department
Mr. Lawrence Walsh
1216 Houbolt Avenue
Joliet, Illinois 60436
(815) 729-9020

College of Lake County
Fire Science Department
Mr. John Shelton
19351 W. Washington Street
Grayslake, Illinois 60030
(312) 223-6601

Lincoln Land Community College
Fire Science Department
Mr. O. R. Vanderwater
Shephard Road
Springfield, Illinois 62700
(217) 786-2269

Oakton Community College
Fire Science Department
Mr. F. Salzberg
7900 N. Nagle Avenue
Morton Grove, Illinois 60053
(312) 967-5120

Prairie State College
Fire Science Department
Mr. Eddie O'Connor
200 E. 197th Street
Chicago Heights, Illinois 20411
(312) 782-5965

Sauk Valley College
Fire Science Department
Mr. A. R. Crowe
Rural Route #1
Dixon, Illinois 61021
(815) 288-5511, x358

Triton College
Fire Science Department
Mr. Leo E. Flynn
2000 5th Avenue
River Grove, Illinois 60171
(312) 456-0300

Police Training Institute
University of Illinois Continuing Education
Mr. Clifford Van Meter
Armory Building, Room 359
Champaign, Illinois 61820
(217) 333-2337

Fire Service Institute
University of Illinois
Mr. Gerald Monigold
301 S. Wright Street
Champaign, Illinois 61820
(217) 333-3800

Indiana

Indiana Vocational Technical College
Fire Science Department
Mr. Robert Ruff
1534 W. Sample Street
South Bend, Indiana 46619
(219) 289-7001

Iowa

Des Moines Area Community College
Fire Science Department
Mr. Burges Shriver
2006 Ankeny Blvd.
Ankeny, Iowa 50021
(515) 964-6200

Kirkwood Community College
Fire Science Department
Mr. Donald Fuller
6301 Kirkwood Blvd., SW
Cedar Rapids, Iowa 52406
(319) 398-5496

William R. Harper College
Fire Science Department
Mr. Charles Henrici
Algonquin & Roselle Roads
Palatine, Illinois 60067
(312) 397-3000

City of Naperville
Fire Prevention Bureau
Captain William Kuhrt
133 W. Jefferson
Naperville, Illinois 60540
(312) 420-6143

Iowa State University
Fire Science Department
Mr. Keith Royer
Ames, Iowa 50010

Kansas

Wichita State University
Fire Science Department
1845 Fairmount
Wichita, Kansas 67208
(319) 689-3425

Kentucky

Eastern Kentucky University
Fire Science Department
Mr. F. Dale Cozad
Richmond, Kentucky
(606) 622-1454

Jefferson Community College
Fire Science Department
Mr. Martin Brown
P.O. Box 1036
Louisville, Kentucky 40201
(502) 584-0181

Western Kentucky University
Fire Science Department
Mr. Charles J. Wright
Bowling Green, Kentucky 42101
(502) 745-4797

Louisiana

Louisiana State University
Division of Continuing Education
Mr. Dan Delanger
Pleasant Hall
Baton Rouge, Louisiana 70803
(504) 766-0600

Maine

Southern Maine Voc. Tech. Institute
Mr. Josiah Staples
Fort Road
South Portland, Maine 04106
(207) 799-7303

Kennebee Valley Voc. Tec. Inst.
Fire Science Department
Ms. Barbara Lanman
Gilman Street
Waterville, Maine 04901
(207) 873-6133

Maryland

Catonsville Community College
 Fire Science Department
 Mr. David Frank
 800 S. Rolling Road
 Catonsville, Maryland 21228
 (301) 455-4444

Montgomery College
 Fire Science Department
 Mr. Richard Ulrich
 Rockville, Maryland 20850
 (301) 762-7400

University of Maryland
 Fire and Rescue Institute
 Mr. Jim Stevens
 College Park, Maryland 20742
 (301) 454-2416

University of Maryland
 Maryland Fire and Rescue Institute
 Western Maryland Regional Office
 Mr. Joseph W. McDaniel, Jr.
 P.O. Box 3303
 Laclede, Maryland 21502

Massachusetts

Berkshire Community College
 Fire Science Department
 Mr. Gene Kamp
 West Street
 Pittsfield, Massachusetts 01201
 (413) 449-4660

Bunker Hill Community College
 Fire Science Department
 Mr. Joseph G. Von Handorf
 Austin Street
 Middleton, Massachusetts 01949
 (617) 241-8600

Charles County Community College
 Fire Science Department
 Mr. Steve Maxwell
 P.O. Box 910, Mitchell Road
 LaPlata, Maryland 20646
 (301) 934-2251

Prince Georges Community College
 Fire Science Department
 Mr. Edwin Beller
 301 Largo Road
 Largo, Maryland 20870
 (301) 336-6000

University of Maryland
 Fire Protection Engineering
 College of Engineering
 Dr. John L. Bryant
 College Park, Maryland 20742
 (301) 454-2424

Bristol Community College
 Fire Science Department
 Mr. Robert Sherman
 77 Ellsbree Street
 Fall River, Massachusetts 02720

Cape Cod Community College
 Fire Sciences Department
 Mr. Robert Tucker
 West Barnstable,
 Massachusetts 02669
 (617) 362-2131

Massasoit Community College
Fire Science Tech Department
Professor Phillip E. Blye
Brockton, Massachusetts 02402
(617) 588-9100

Mount Wachusett Community College
Fire Science Department
Mr. Herman Gelbwasser
Grain Street
Gardner, Massachusetts 01440
(617) 632-6600

Quinsigamond Community College
Fire Science Department
670 West Boylston Street
Worcester, Massachusetts 01606

Middlesex Community College
Fire Science Department
Mr. Lawrence Rice
21 Springs Road
Bedford, Massachusetts 01730
(617) 275-8910

North Shore Community College
Fire Science Department
Mr. Francis M. Ryan
3 Essex Street
Beverly, Massachusetts 01915
(617) 927-4850

Springfield Technical Community
College
Fire Science Department
Albert W. Valentine
1 Armory Square
Springfield, Massachusetts
01105
(413) 781-6470

Michigan

Henry Ford Community College
Fire Science Department
Mr. Thadeus Matley
5101 Evergreen Road
Dearborn, Michigan 48128
(313) 271-2750

Lake Michigan College
Fire Protection Technician
Lieutenant Devine
Benton Harbor, Michigan 49022
(616) 927-3571

McComb County Community College
Fire Science Department
Mr. Art Kingsbury
Center Campus, P. O. Box 309
Warren, Michigan 48093
(313) 286-2058

Kellogg Community College
Fire Science Department
Mr. Allen Vosberg
450 N Avenue
Battle Creek, Michigan 49016
(616) 965-3931, Ext. 212

Lansing Community College
Fire Science Department
Mr. Robert Ogilvy
419 N Capitol Avenue
Lansing, Michigan 48914
(517) 373-7013

Madonna College
Fire Science Department
Mr. James Lynchee
36600 School Craft
Livonia, Michigan 48150
(313) 591-1200

C. S. Mott Community College
Fire Protection
Fred Lamb
Flint, Michigan 48503
(313) 762-2081

Washtenaw Community College
Fire Protection Technology
Dean Hackney
Ann Arbor, Michigan 48107

Minnesota

Metropolitan Community College
William Quirk
1419 Harmon Place
Minneapolis, Minnesota 55403
(612) 341-7061

University of Minnesota
Fire Science Department
Roger Young
3000 University Avenue, SE
Minneapolis, Minnesota 55415
(612) 373-3844

Mississippi

Hinds Junior College
Fire Science Department
Norman Preston
Raymond, Mississippi 39154
(601) 857-5261

St. Clair County Community
College
Fire Science Department
Mr. Krug
Port Huron, Michigan 48060

St. Clair County Community
College
C. F. Knight
3000 University Avenue, SE
Minneapolis, Minnesota 55415
(612) 373-3844

Missouri

Central Missouri State University
Fire Science Department
Mr. Robert Semonisck
Warrensburg, Missouri 64093
(816) 429-4111

Jackson State University
Department of Industrial Tech
J. T. Smith
1235 Lynch
Jackson, Mississippi 39203
(601) 968-2466

Columbia College
Extended Studies Division
Director of Fire Science
Columbia, Missouri 65201

Drury College
 Fire Science Program
 Rosa Lee White
 900 N Benton
 Springfield, Missouri 65802
 (417) 865-8731

Jefferson College
 Fire Science Department
 Mr. Raymond Walsh
 Hillsboro, Missouri 63050
 (314) 789-3951, Ext. 140

St. Louis Community College
 At Florrisant Valley
 Fire Science Department
 Herbert V. McMahon
 3400 Pershall Road
 St. Louis, Missouri 63135
 (314) 595-4200

University of Missouri
 Fire Training
 Bill Westhoff, Jr.
 1001 Ashland Gravel Road
 Columbia, Missouri 65201
 (314) 882-6498

Montana

Montana Board of Public Education
 Fireman Training Program
 33 S. Last Chance Gulch
 Helena, Montana 59601
 (406) 449-2785

Nebraska

Southeast Community College
 Fire Science Department
 Mr. Don Venter
 1309 N 17th Street
 Lincoln, Nebraska 68508

East Central Junior College
 Fire Science Program
 Mr. Ed Conway
 Union, Missouri 63084
 (314) 583-5193

Penn Valley Community College
 Fire Science Department
 Mr. Richard Lehmann
 3201 SW Trafficway
 Kansas City, Missouri 64111
 (816) 756-2800, Ext. 257

St. Louis Community College
 At Forest Park
 Fire Science Department
 D. B. Miller
 5600 Oakland Avenue
 St. Louis, Missouri 63110
 (314) 644-9285

University of Nebraska - Omaha
 Fire Science Department
 H. A. Dahlquist
 P. O. Box 688
 Omaha, Nebraska 68132
 (402) 554-2543

Nevada

Clark County Community College
 Fire Science Department
 Dave Hogara
 3200 East Cheyenne Avenue
 North Las Vegas, Nevada 89030
 (702) 643-6060

Northern Nevada Community
 College
 Fire Science Department
 Mr. William Berg
 921 Elm Street
 Elko, Nevada 89801
 (702) 738-8493

New Hampshire

New Hampshire Vocational Tech College
 Fire Protection Program
 Thomas Dawson
 Prescott Hill - Route 106
 Laconia, New Hampshire 03246
 (603) 524-3207

Lily Pond Fire School
 Lakes Region Mutual Fire Aid
 Association
 Edward Warfield
 64 Court Street
 Laconia, New Hampshire 03246
 (603) 624-2386

New Jersey

Atlantic Community College
 Fire Science Department
 Mr. E. J. Fottrell
 Mays Landing, New Jersey 08330
 (609) 625-1111, Ext. 243

Bergen Community College
 Fire Science Department
 Mr. Horace Chandler
 400 Paramus Road
 Paramus, New Jersey 07652
 (201) 447-1500

Camden County College
 Fire Science Department
 John Tenbrook
 P. O. Box 200
 Blackwood, New Jersey 08012
 (609) 227-7200

Essex County College
 Fire Science Department
 Charles Lowollo
 31 Clinton Street
 Newark, New Jersey 07102
 (201) 877-3000

Jersey City State College
 Fire Science Department
 2039 Kennedy Blvd.
 Jersey City, New Jersey 07305
 (201) 547-3311

Mercer County College
 Fire Science Department
 Al Porter
 1200 Old Trenton Road
 Trenton, New Jersey 08690
 (609) 586-4800

Passaic County Community College
Fire Science Department
Mark H. Schaffer
170 Patterson Street
Paterson, New Jersey 07505
(201) 279-500

Somerset County College
Fire Science Department
Carol Murgaugh
P. O. Box 3300
Somerville, New Jersey 08876
(201) 526-1200

New Mexico

University of Albuquerque
Fire Science Department
Dr. Stevenson
St. Joseph Place
Albuquerque, New Mexico 87106
(505) 831-1111, Ext. 330

New York

Broome Community College
Continuing Education
Fire Protection Program
Ogden Clark
P. O. Box 1017
Binghamton, New York 13902
(607) 772-5005

John J. College of Criminal Justice
Fire Science Department
Richard Abbott
445 West 49th Street
New York, New York 10019
(212) 489-5183

Onondaga Community College
Fire Science Department
Mr. Larry Linch
700 East Water Street
Syracuse, New York 13215
(315) 469-7741, Ext. 5225

Schenectady County Community College
Fire Science Department
Irma R. Chestnut
Washington Avenue
Schenectady, New York 12305
(518) 346-6211

Central Texas College
Overseas Europe
Fire Protection Technology
Hanau
APO New York, New York 09165

Monroe Community College
Fire Science Department
John T. Maher
1000 East Henrietta Road
Rochester, New York 14600
(716) 442-9950

Rockland Community College
Fire Science Department
Thomas Goldrick
145 College Road
Suffern, New York 10901
(914) 356-4650

Suffolk County Vocational
Education and Extension Board
Fire Science Training
P. O. Box 128
Yaphank, New York 11980
(516) 265-7269

Westchester Community College
Fire Science Department

Charles Crowley
75 Grasslands Road
Valhalla, New York 10595
(914) 347-6800

North Carolina

Central Piedmont Community College
Fire Science Department
George W. Wright
Elizabeth Avenue at N. King's Drive
Charlotte, North Carolina 28204
(704) 373-6705

Forsyth Technical Institute
Fire Science Department
Larry Weaver
2100 Silas Creek Parkway
Winston - Salem, North Carolina 27103
(919) 723-0371

Richmond Technical Institute
Fire Science Department
Richard McIntyre
P. O. Box 1189
Hamlet, North Carolina 28345
(919) 582-1980

James Sprunt Technical Institute
Fire Science Department
Emmel Coggins
P. O. Box 398
Kenansville, North Carolina 28349
(919) 296-1341

Western Piedmont Community College
Fire Science Department
Mr. Jerry Rowland
1001 Burkemont Avenue
Morgantown, North Carolina 28655
(704) 437-8688

Durham Technical Institute
Fire Science Department
Joseph Wade
1637 Lawson Street
Durham, North Carolina 27703
(912) 596-9311

Guilford Technical Institute
Fire Science Department
Harold J. Fegan
P. O. Box 309
Jamestown, North Carolina 27282
(919) 292-1101

Rowan Technical Institute
Fire Science Department
Mr. Larry Gibson
P. O. Box 1595
Salisbury, North Carolina 28144
(704) 637-0760, Ext. 46

Technical Institute of Alamance
Fire Science Department
Jerry Harris
411 Camp Road
Burlington, N. C. 27215
(919) 578-2002

North Dakota

North Dakota Fireman's Association
D. E. Gilman
Beach, North Dakota 58621
(701) 872-4392

Ohio

University of Akron
Fire Science Department
Mr. Harrington
302 E. Buchtel Avenue
Akron, Ohio 44325
(216) 375-7906

Columbus Technical Institute
Fire Science Department
Mr. Glenn Clark
550 E Spring Street
Columbus, Ohio 43215
(614) 221-6743

Hocking Technical College
Fire Science Department
William Hennestofle
Rt. 1
Nelsonville, Ohio 45764
(614) 753-3591

Ohio State Fireman's
Training Academy
Tina Hazlett
8895 E Main Street
Reynoldsburg, Ohio 43068
(614) 864-5510

Stark Technical College
Fire Science Department
Joseph L. Hafer
6200 Frank Avenue, NW
Canton, Ohio 44720
(216) 994-6170

University of Cincinnati
Fire Protection
D. F. Pinger
100 E Central Parkway
Cincinnati, Ohio 45210
(513) 475-6567

Cuyahoga Community College
Fire Science Department
Fred C. Sutton
2900 Community College Avenue
Cleveland, Ohio 44115
(216) 241-5966

Lorain County Community College
Fire Science Department
Mr. Walter McGreedy
1005 N Abbe Road
Elgin, Ohio 44035
(216) 365-4191

Owens Technical College
Fire Science Department
William Russell
30335 Oregon Road
Perryburg, Ohio 43551
(419) 666-0580

Oklahoma

Oklahoma State Tech Institute
 Fire Science Department
 Bob Mowles
 900 N Portland
 Oklahoma City, Oklahoma 73107
 (405) 947-0771

Tulsa Junior College
 Fire Science Department
 Mr. McElyea
 909 S Boston
 Tulsa, Oklahoma 74119
 (918) 587-6561, Ext. 175

Oklahoma State University
 Fire Science Department
 Mr. Dale Janes
 Stillwater, Oklahoma 74074
 (405) 624-5000

Western Oklahoma State College
 Fire Science Department
 Mr. Cecil Chesser
 2801 N Main
 Altus, Oklahoma 73521
 (405) 477-2000

Oregon

Chemeketa Community College
 Fire Science Department
 Cecil Dill
 P. O. Box 14007
 Salem, Oregon 97309
 (503) 399-5163

Portland Community College
 Fire Science Department
 John Koroloff
 12005 West 49th Avenue
 Portland, Oregon 97219
 (503) 244-6111

Clackamas Community College
 Fire Science Department
 Durwood Thomas
 19600 South Molalla Avenue
 Oregon City, Oregon 97045
 (503) 656-2631

Rogue Community College
 Fire Science Department
 Mr. Mark Burns
 3345 Redwood Highway
 Grants Pass, Oregon 97526
 (503) 579-5541

Pennsylvania

Butler County Fire Chiefs Association
 Butler County Fire School
 John Stokes
 124 West North Street
 Butler, Pennsylvania 16001
 (412) 382-4200

Delaware County Community
 College
 Fire Academy
 Walter Omlor
 Media, Pennsylvania 19063
 (215) 353-5400, Ext. 427

Northampton County Area Community College
Fire Science Department
Regina Tauke
3835 Green Pond Road
Bethlehem, Pennsylvania 18017
(215) 865-5351

Pennsylvania State University
Fire Science Department
Charles R. Meck
209 Keller Building
University Park, Pennsylvania
16802

Community College of Philadelphia
Fire Science Department
Paul Ruhne
1600 Spring Garden Street
Philadelphia, Pennsylvania 19130
(215) 972-7436

Rhode Island

Providence College
Fire Science Department
Roger L. Pearson
River and Eaton Streets
Providence, Rhode Island 02918
(401) 865-1000

Rhode Island Junior College
Fire Science Department
John Marmaras
400 East Avenue
Warwick, Rhode Island 02886
(401) 825-2145

South Carolina

Midlands Technical College
Fire Science Department
P. O. Drawer Q
Columbia, South Carolina 29250

South Carolina Fire Academy
Paul W. Risher, Jr.
Illinois Avenue
West Columbia, South Carolina
29169
(803) 758-8420

South Dakota

Fire Services Training
Jim Slippin
222 West Pleasant Drive
Pierre, South Dakota 57501
(605) 773-3876

Tennessee

Chattanooga State Technical Community College
 Fire Science Department
 Leslie Owen
 4501 Amnicola Highway
 Chattanooga, Tennessee 37406
 (615) 622-6262

Roane State Community College
 Fire Science Department
 William C. Marshals
 Harriman, Tennessee 37748
 (615) 354-3000

Shelby State Community College
 Fire Science Department
 Clem Weinrich
 P. O. Box 22026
 Memphis, Tennessee 38122
 (901) 382-0504

University of Tennessee
 Fire Science Department
 Mike Solecki
 Charlotte Avenue
 Nashville, Tennessee 37219
 (615) 251-1341

Walter State Community College
 Fire Science Department
 Ronald Lemke
 Morristown, Tennessee 37814
 (615) 581-2121

Texas

Del Mar College
 Fire Science Department
 E. E. Walters
 Baldwin at Ayers
 Corpus Christi, Texas 48404
 (512) 881-6425

El Paso Community College
 Fire Science Department
 Gerald B. Money
 6601 Dyer Street
 El Paso, Texas 79904
 (915) 778-7117

Galveston College
 Fire Science Department
 James Frazier
 4015 Avenue "Q"
 Galveston, Texas 77550
 (713) 763-2661

Midland College
 Fire Science Department
 Mr. Mil Goodwin
 3600 N Garfield
 Midland, Texas 79701
 (915) 684-7851

Odessa College
 Fire Science Department
 Mr. O. Nordmarken
 P. O. Box 3752
 Odessa, Texas 79760
 (915) 337-5381, Ext. 238

San Antonio College
 Fire Science Department
 Mike Pickett
 1300 San Pedro
 San Antonio, Texas 78284
 (512) 734-7311, Ext. 209

South Plains College
Fire Science Department
Mr. B. P. Robinson
2404 Avenue "Q"
Lubbock, Texas 79405
(806) 747-0576

Texas A & M University System
Engineering Extension Service
Fire Protection Training Service
David White
F. E. Drawer K
College Station, Texas 77843

Texarkana Community College
Social Science Division
Bob Bell
2500 N Robinson Road
Texarkana, Texas 75501
(214) 838-4541

Utah

Utah Technical College - Provo
Fire Science Department
Mr. G. D. Evans
1395 North 150 East
Provo, Utah 84601

Vermont

Southeastern Vermont
Emergency School
Fire Science Department
Mark B. Rivers, Director
P. O. Box 44
Brattleboro, Vermont 05301

Temple Junior College
Fire Science Department
Mr. S. W. Churchill
2600 South First Street
Temple, Texas 76501
(817) -73-9961, Ext. 51

Tyler Junior College
Fire Science Department
R. T. Minter
Henderson Highway
Tyler, Texas 75701
(214) 593-4401

Virginia

George Mason University
John M. Smith
4400 University Drive
Fairfax, Virginia 22030
(703) 323-2405

Vermont Fire Fighter's
Association
Walter Read
East Dorset, Vermont 05253
(802) 362-1369

J. Sargent Reynolds Community Dr.
College
Fire Science Department
George Kitchen
P. O. Box 12084
Richmond, Virginia 23241
(804) 264-3301

West Virginia Northern Community College
Fire Science Department
Richard Sambuco
Wheeling, West Virginia 26003
(304) 233-4900

West Virginia State College
Fire Protection Technology
Mr. Gwinn
Institute, West Virginia 25112
(304) 766-3192

Wisconsin

Fox Valley Technical Institute
Fire Science Department
Charles Bavry
P. O. Box 2277
Appleton, Wisconsin 54911
(414) 739-8831

Gateway Technical Institute
Fire Science Department
Dr. Nevala
3520 30th Avenue
Kenosha, Wisconsin 53141
(414) 656-6900

Milwaukee Area Tech College
Fire Science Department
Robert L. Wolf
1015 North 6th Street
Milwaukee, Wisconsin 53203
(414) 278-6428

Moraine Park Tech Institute
Fire Service Training
Bob Bruce
235 N National
Fond du Lac, Wisconsin 54935
(414) 922-8611, Ext. 413

Northeast Wisconsin Tech Institute
Service Department
William T. Schrnidt
2740 West Mason Street
Green Bay, Wisconsin 54303
(414) 497-3003

Southwest Wisconsin Vo-Tech Fire
Institute
Fire Service Department
Don Covert
Bronson Blvd.
Fennimore, Wisconsin 53809

Wyoming

University of Wyoming
Fire Science Department
Dr. E. G. Meyer
Laramie, Wyoming 82071

Northern Virginia Community College
Fire Science Department
Robert L Smith
8333 Little River Turnpike
Annandale, Virginia 22003
(703) 323-3253

Tidewater Community College
Fire Science Department
Mr. A. B. Corley
1700 College Crescent
Virginia Beach, Virginia 23456
(804) 427-3070

• Washington

L. H. Bates Vocational Tech Institute
Fire Science Department
J. F. Wilbert
1101 S. Yakima
Tacoma, Washington 98405
(206) 597-7257

Columbia Basin College
Fire Science Department
2600 N 20th Avenue
Pasco, Washington 99301
(509) 547-0511

Commission for Vocational Education
Fire Service Training
Edward Prendergast
Airdustrial Park, Bldg. 17, LS-10
Olympia, Washington 98504

Edmonds Community College
Fire Science Department
Gary Isham
Lynnwood, Washington 98036

Whatcom Community College
Fire Science Department
Barbara Merriman
5217 Northwest Road
Bellingham, Washington 98225
(206) 676-2170

Yakima Valley College
Fire Science Department
P. O. Box 1647
Yakima, Washington 98907

West Virginia

Community College of Marshall University
Fire Science Technology Program
Larry Artrip
Huntington, West Virginia 25701
(304) 696-3646

Fairmont State College
Community College
Fire Science Program
Jack Clayton
Fairmont, West Virginia 26554
(304) 367-4000

Parkersburg Community College
Fire Science Department
Pat Alford
Parkersburg, West Virginia 26101
• (304) 424-8290

Shepherd College
Fire Science and Safety
Tech
Dr. Howard Carper
Shepherdstown, West Virginia
25443
(304) 876-2511, Ext. 275

FEDERAL, STATE AND LOCAL GOVERNMENT AGENCIES OFFERING COURSES AND SEMINARS

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Louis O. Giuffrida
Building 904, Camp San Luis Obispo
San Luis Obispo, California 93406
(805) 544-7100

Maryland Department of Transportation
State Aviation Administration
3rd, Floor Terminal Building
Baltimore - Washington International Airport
Baltimore, Maryland 21240
(301) 787-7086

Naval School Transportation Management
Commanding Officer
ATTN: Quota Control
Oakland, California 94625
(415) 466-5969

Port Authority of New York and New Jersey
Eunice C. Coleman
The World Trade Institute
1 World Trade Center - 55 FL
New York, New York 10048
(212) 466-3170

Ammunition School
DARCUM Ammunition Center
ATTN: SARAC-ASA
Savannah, Illinois 61074
(815) 273-8000

Joint Military Packaging Training Center
Ms. Elsie M. Clark
ATTN: DRXPT-A
Aberdeen Proving Grounds; MD 21005
(301) 278-5185

Colorado Training Institute
1001 East 62nd Avenue
Denver, Colorado
(303) 289-4891

Multnomah County
Office of Emergency Management
Myra Lee
12240 NE Glisan
Portland, Oregon 97230
(503) 255-3600

Sheppard Air Force Base
ATTN: STTC/TTGXT
William Speights
Sheppard AFB, Texas 76311
(817) 851-2075

State of North Carolina
Department of Insurance
Dawson Nethercutt
Fire and Rescue Services
Division
Raleigh, North Carolina 27611
(919) 733-2142

Department of Transportation
Transportation Safety
Institute
Mr. Gary Groman
Oklahoma City, Oklahoma 73125
(405) 686-4824

Academy of Advanced Traffic
Anthony Matero
One World Trade Center
New York, New York 10047
(212) 466-1980

CORPORATIONS AND OTHER BUSINESS WHICH OFFER COURSES

Academy of Advanced Transportation
 Lee Thomas
 One East Penn Square Building
 Market and Juniper Streets
 Philadelphia, Pennsylvania 19107
 (215) 563-3061

J. T. Baker
 Carol Morris
 222 Red School Lane
 Phillipsburg, New Jersey 08865
 (201) 859-2151

Chemical Manufacturers Association
 John Zercher
 1825 Connecticut Avenue
 Washington, DC 20009
 (202) 328-4218

Dean Allard and Associates
 Dean E. Allard, Sr.
 P. O. Box 3128
 Lynnwood, Washington 98036
 (206) 771-1711

Federal Express
 Rick Finney
 P. O. Box 30167
 Memphis, Tennessee 38130
 (800) 238-5592

J. J. Keller & Associates, Inc.
 Joe Nemecek
 145 W. Wisconsin Avenue
 Neenah, Wisconsin 54956
 (414) 722-2848

National Fire Protection Assoc.
 Education Technology Unit
 470 Atlantic Avenue
 Boston, Massachusetts 02210
 (617) 482-8755

Ashland Chemical Co.
 Walt Schneider
 P. O. Box 2219
 Columbus, Ohio 43216
 (614) 889-3061

Center for Professional
 Advancement
 Talia Catering
 P. O. Box H
 East Brunswick, New Jersey
 08816
 (201) 249-1400, Ext. 200

Conrail
 B. L. Swierenga
 No. 6, Penn Center, Rm. 315
 Philadelphia, Pennsylvania 19104
 (215) 977-4559

ENSAFE
 Environmental and Safety Design
 Wendall Knight
 P. O. box 34207
 Memphis, Tennessee 38134
 (901) 372-7692

Flying Tiger Line
 Alan Hollander
 Safety Department HO8
 7401 World Way West
 Los Angeles, California 90009
 (213) 642-4082

Lyon Technology, Inc.
 William P. Taggart
 466 Mount Hope Avenue
 Dover, New Jersey 07801
 (201) 366-3200

Medical Services, Inc.
 Brad Childs
 2100 West 11th Avenue
 P. O. box 2446
 Eugene, Oregon 97402
 (502) 485-2121

Operations Council
American Trucking Assoc., Inc.
Mr. Brent Grimes
1616 P. Street, NW
Washington, D. C. 20036
(202) 797-4537

Radiation Service Organization
Mr. Daniel Caulk
P.O. Box 419
Laurel, MD 20810
(301) 792-7444
(301) 953-2484 (Washington, D.C.)

Safety Systems, Inc.
Mr. Ronald G. Gore
P.O. Box 8463
Jacksonville, Florida 32211
(904) 725-3044

Seaboard Coast Line Industries, Inc.
Mr. Peter Gill, Manager
Hazardous Materials Control
500 Water Street
Jacksonville, Florida 32202
(904) 359-3587

Southern Pacific Trans. Co.
Mr. Robert Andre
One Market Street
San Francisco, California 94015
(415) 362-1212, Ext. 21563

Traffic and Distribution Services, Inc.
Mr. Samuel L. Watts
1050 Waltham Street
Lexington, MA 02177
(617) 861-1830

Training Services, Inc.
Mr. Leonard J. Smith
130 Orient Way
Rutherford, New Jersey 07070
(201) 933-5880

Transportation Skills Program
Mr. Robert J. Keegan
320 W. Main Street
Kutztown, Pennsylvania 19530
(215) 683-5098

UNZ and Company
Mr. Fred Neuman
190 Baldwin Avenue
Jersey City, New Jersey 07306
(800) 631-3098
(201) 795-5400 NJ

Wein Air Alaska, Inc.
Marketing Training Dept.
Mr. Thomas L. Kenney
4100 International Airport Road
Anchorage, Alaska 99504
(907) 266-3608/3609

NOTE: The Organizations above offer both courses and seminars. Contact those organizations for scheduling and other details.

E. I. DuPont de Nemours and Co., Inc.
Dr. Arthur C. Santora
Applied Technology Division
Clayton Building, Concord Place
Wilmington, Delaware 19898
(302) 772-5998

National Agricultural Chemicals Association
Director of Communications
Department of Communications
1155 Fifteenth Street, NW
Washington, D. C. 20005
(202) 296-1585

Video Systems Network, Inc.
Mr. Jerry Meisel, Regional Manager
12530 Beatrice Street
Los Angeles, California 90066
(213) 871-0677
800-421-6521

NOTE: The Organizations listed above offer training materials only.

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Hazardous Materials Management System
A Guide for Local Emergency Managers
Unclassified
Multnomah County Office of Emergency Management
July, 1981
99 Pages
Contract No. DCPA 01-79-C-0323 Work Unit No. 4521E

Purpose

The purpose for the development of this handbook is to provide a tangible guide to the local emergency manager for the development and implementation of a comprehensive system approach for dealing with hazardous materials incidents within a specific geographic area. It was written from the perspective that such a system is multi-disciplinary in nature and therefore it is essential that those involved identify, understand, and accept their individual roles within the concept of a team effort. The role of the local emergency manager is that of directing and coordinating developmental activities, monitoring the implementation of the system, and subsequently to, test and evaluate its progress. The roles of initial response, clean up, investigation, and regulatory enforcement are most appropriately handled by the public and private agencies with the technical expertise and mandated authority to do so.

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